

# SEQUENCE LISTING

<110> Shutter, John  
Ulias, Laarni

<120> ATP-Binding Cassette Transporter-Like Molecules and  
Uses Thereof

<130> 00-658-A

<140>

<141>

<150> 60/253,520

<151> 2000-11-28

<160> 24

<170> PatentIn Ver. 2.0

<210> 1

<211> 6633

<212> DNA

<213> Mus musculus

<220>

<221> sig\_peptide

<222> (1)..(138)

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<221> CDS

<222> (1)..(6504)

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Asn Arg Leu Leu Pro Gln Ser Lys Pro Arg Leu Leu Pro Pro Leu Gly			
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gag gag gat gag gat gtg gct caa gag cgt gag cgg gtg acc aag ggg			5424
Glu Glu Asp Glu Asp Val Ala Gln Glu Arg Glu Arg Val Thr Lys Gly			
1795	1800	1805	
gct acc cag ggg gat gtg cta gtc ctc agg gac ttg acc aag gtt tac			5472
Ala Thr Gln Gly Asp Val Leu Val Leu Arg Asp Leu Thr Lys Val Tyr			
1810	1815	1820	
cgt ggg cag agg aac cca gct gtg gat cgc ctg tgc tta ggg atc ccc			5520
Arg Gly Gln Arg Asn Pro Ala Val Asp Arg Leu Cys Leu Gly Ile Pro			
1825	1830	1835	1840
cct ggg gag tgt ttc ggg ctg ctg ggt gtc aac ggg gca ggg aag aca			5568
Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly Lys Thr			
1845	1850	1855	
tcc acc ttc cgc atg gtg aca ggg gac aca ctg ccc agc agt ggt gaa			5616
Ser Thr Phe Arg Met Val Thr Gly Asp Thr Leu Pro Ser Ser Gly Glu			
1860	1865	1870	
gca gta ctg gca ggc cac aac gtg gcc cag gag cgg tct gcc gca cac			5664
Ala Val Leu Ala Gly His Asn Val Ala Gln Glu Arg Ser Ala Ala His			
1875	1880	1885	
cgc agc atg ggc tac tgt ccc cag tct gat gcc atc ttc gac ctg ctg			5712
Arg Ser Met Gly Tyr Cys Pro Gln Ser Asp Ala Ile Phe Asp Leu Leu			
1890	1895	1900	
acc ggc cgg gaa cat ctg gaa ctg ttt gct cgc ctg cgc ggg gtg ccc			5760
Thr Gly Arg Glu His Leu Glu Leu Phe Ala Arg Leu Arg Gly Val Pro			
1905	1910	1915	1920

gag gcc caa gtt gcc cag act gcg ctc tct ggc ctg gtg cgc ctg ggc	5808
Glu Ala Gln Val Ala Gln Thr Ala Leu Ser Gly Leu Val Arg Leu Gly	
1925 1930 1935	
ctt cct agc tat gca gac cga ccc gcg ggt acc tac agc gga ggc aac	5856
Leu Pro Ser Tyr Ala Asp Arg Pro Ala Gly Thr Tyr Ser Gly Gly Asn	
1940 1945 1950	
aaa cgg aag ctg gcg aca gcc tta gct ctg gtt ggt gac cca gct gtg	5904
Lys Arg Lys Leu Ala Thr Ala Leu Ala Leu Val Gly Asp Pro Ala Val	
1955 1960 1965	
gtc ttt ctg gac gag ccc acc aca ggc atg gac cca agt gcg cgg cga	5952
Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Ser Ala Arg Arg	
1970 1975 1980	
ttt ctt tgg aac agc ttg ctg tcc gtg gtg cgc gag ggc cgc tcc gta	6000
Phe Leu Trp Asn Ser Leu Leu Ser Val Val Arg Glu Gly Arg Ser Val	
1985 1990 1995 2000	
gtg ctc acg tcg cac agc atg gag gag tgc gaa gcg ctc tgc acg cgc	6048
Val Leu Thr Ser His Ser Met Glu Glu Cys Glu Ala Leu Cys Thr Arg	
2005 2010 2015	
ctg gcc atc atg gtg aac ggg cgg ttc cgc tgt ctg gga agc tct cag	6096
Leu Ala Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser Ser Gln	
2020 2025 2030	
cat ctc aaa ggc agg ttc ggg gct ggc cac aca ctg act cta agg gtc	6144
His Leu Lys Gly Arg Phe Gly Ala Gly His Thr Leu Thr Leu Arg Val	
2035 2040 2045	
cca ccg gac cag cct gag ccg gcg ata gcc ttc atc agg atc aca ttc	6192
Pro Pro Asp Gln Pro Glu Pro Ala Ile Ala Phe Ile Arg Ile Thr Phe	
2050 2055 2060	
cct ggg gct gaa ctc cgg gag gtg cac ggc agc cgt ctg cgc ttc caa	6240
Pro Gly Ala Glu Leu Arg Glu Val His Gly Ser Arg Leu Arg Phe Gln	
2065 2070 2075 2080	
ctg cca ccg ggg ggc aga tgc acc ctg aca cga gtg ttc agg gag ctg	6288
Leu Pro Pro Gly Gly Arg Cys Thr Leu Thr Arg Val Phe Arg Glu Leu	
2085 2090 2095	
gct gcc cag ggc agg gcc cac ggt gtg gag gac ttc tct gtg agc cag	6336
Ala Ala Gln Gly Arg Ala His Gly Val Glu Asp Phe Ser Val Ser Gln	
2100 2105 2110	
acc act ctg gag gag gtg ttc cta tat ttc tcc aaa gac caa ggg gaa	6384
Thr Thr Leu Glu Glu Val Phe Leu Tyr Phe Ser Lys Asp Gln Gly Glu	
2115 2120 2125	
gag gaa gag agc agt cgg cag gag gct gaa gaa gag gag gtt tcc aaa	6432
Glu Glu Glu Ser Ser Arg Gln Glu Ala Glu Glu Glu Glu Val Ser Lys	
2130 2135 2140	

cct ggc cgg cag cat ccc aaa cgt gtc agc cga ttc ctg gaa gac ccc 6480  
 Pro Gly Arg Gln His Pro Lys Arg Val Ser Arg Phe Leu Glu Asp Pro  
 2145 2150 2155 2160

agc tct gtg gag acc atg atc tga gcatgcctgc cttgggactg agtggcaaag 6534  
 Ser Ser Val Glu Thr Met Ile  
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 Leu Phe Leu Phe Phe Ile Leu Val Ala Val Arg His Ser His Pro Pro  
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 Leu Glu His His Glu Cys His Phe Pro Asn Lys Pro Leu Pro Ser Ala  
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 Gly Thr Val Pro Trp Leu Gln Gly Leu Val Cys Asn Val Asn Asn Ser  
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 Cys Phe Gln His Pro Thr Pro Gly Glu Lys Pro Gly Val Leu Ser Asn  
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 Phe Lys Asp Ser Leu Ile Ser Arg Leu Leu Ala Asp Thr Arg Thr Val  
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 115 120 125  
 Ile Pro Val Leu Arg Ala Val Gly Gly Gly Ala Arg Pro Gln Glu Ser  
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 Asp Gln Pro Thr Ser Gln Gly Ser Val Thr Lys Leu Leu Glu Lys Ile  
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 165 170 175  
 Met Arg Lys Phe Ser Asp Ala Ile Arg Asp Leu Ala Gln Glu Leu Leu  
 180 185 190  
 Thr Leu Pro Ser Leu Met Glu Leu Arg Ala Leu Leu Arg Arg Pro Arg  
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Gly Ser Ala Gly Ser Leu Glu Leu Val Ser Glu Ala Leu Cys Ser Thr  
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 Lys Gly Pro Ser Ser Pro Gly Gly Leu Ser Leu Asn Trp Tyr Glu Ala  
 225 230 235 240  
 Asn Gln Leu Asn Glu Phe Met Gly Pro Glu Val Ala Pro Ala Leu Pro  
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 Asp Asn Ser Leu Ser Pro Ala Cys Ser Glu Phe Val Gly Thr Leu Asp  
 260 265 270  
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 275 280 285  
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 Met Ala Gln Val Asn Gln Thr Phe Glu Glu Leu Ala Leu Leu Arg Asp  
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 405 410 415  
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 Ala Gly Ile Val Phe Leu Ser Pro Glu His Pro Leu Asp Pro Ser Glu  
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 Leu Ser Ser Pro Ala Leu Ser Pro Gly His Leu Arg Phe Lys Ile Arg  
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 Met Asp Ile Asp Asp Val Thr Arg Thr Asn Lys Ile Arg Asp Lys Phe  
 465 470 475 480  
 Trp Asp Pro Gly Pro Ser Ala Asp Pro Phe Met Asp Leu Arg Tyr Val  
 485 490 495  
 Trp Gly Gly Phe Val Tyr Leu Gln Asp Leu Leu Glu Gln Ala Ala Val  
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Arg Val Leu Gly Gly Gly Asn Ser Arg Thr Gly Leu Tyr Leu Gln Gln  
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 Met Pro His Pro Cys Tyr Val Asp Asp Val Phe Leu Arg Val Leu Ser  
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 565 570 575  
 Thr Met Arg Ala Met Gly Leu Ser Arg Ala Val Leu Trp Leu Gly Trp  
 580 585 590  
 Phe Leu Ser Cys Leu Gly Pro Phe Leu Val Ser Ala Ala Leu Leu Val  
 595 600 605  
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 610 615 620  
 Ile Phe Leu Phe Leu Ala Ala Phe Ala Val Ala Thr Val Ala Gln Ser  
 625 630 635 640  
 Phe Leu Leu Ser Ala Phe Phe Ser Arg Ala Asn Leu Ala Ala Ala Cys  
 645 650 655  
 Gly Gly Leu Ala Tyr Phe Ala Leu Tyr Leu Pro Tyr Val Leu Cys Val  
 660 665 670  
 Ala Trp Arg Glu Arg Leu His Leu Gly Gly Leu Leu Ala Ala Ser Leu  
 675 680 685  
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 690 695 700  
 Glu Glu Gln Gly Asp Gly Ala Gln Trp His Asn Leu Gly Thr Gly Pro  
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 Ala Glu Asp Val Phe Ser Leu Ala Gln Val Ser Ala Phe Leu Leu Leu  
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 Asp Ala Val Ile Tyr Gly Leu Ala Leu Trp Tyr Leu Glu Ala Val Cys  
 740 745 750  
 Pro Gly Gln Tyr Gly Ile Pro Glu Pro Trp Asn Phe Pro Phe Arg Arg  
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 Ser Tyr Trp Cys Gly Pro Gly Pro Pro Lys Ser Ser Val Leu Ala Pro  
 770 775 780  
 Ala Pro Gln Asp Pro Lys Val Leu Val Glu Glu Pro Pro Leu Gly Leu  
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 Val Pro Gly Val Ser Ile Arg Gly Leu Lys Lys His Phe Arg Gly Cys  
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Pro Gln Pro Ala Leu Gln Gly Leu Asn Leu Asp Phe Tyr Glu Gly His  
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 Ile Thr Ala Phe Leu Gly His Asn Gly Ala Gly Lys Thr Thr Thr Leu  
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 Ser Ile Leu Ser Gly Leu Phe Pro Pro Ser Ser Gly Ser Ala Ser Ile  
 850 855 860  
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 865 870 875 880  
 Gly Ile Cys Pro Gln Tyr Asn Val Leu Phe Asp Met Leu Thr Val Glu  
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 Glu His Val Trp Phe Tyr Gly Arg Leu Lys Gly Val Ser Ala Ala Ala  
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 Met Gly Pro Glu Arg Glu Arg Leu Ile Arg Asp Val Gly Leu Thr Leu  
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 Asp Glu Pro Thr Ala Gly Val Asp Pro Ala Ser Arg Arg Gly Ile Trp  
 965 970 975  
 Glu Leu Leu Leu Lys Tyr Arg Glu Gly Arg Thr Leu Ile Leu Ser Thr  
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 Lys Lys Ser Asp Gly Asn Gly Arg Thr Ser Asp Thr Ala Phe Thr Arg  
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 Gly Thr Ser Asp Lys Ser Asn Gln Ala Pro Ala Pro Gly Ala Val Pro  
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 Ile Thr Pro Ser Thr Ala Arg Ile Leu Glu Leu Val Gln Gln His Val  
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 Pro Gly Ala Gln Leu Val Glu Asp Leu Pro His Glu Leu Leu Leu Val  
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Leu Pro Tyr Ala Gly Ala Leu Asp Gly Ser Phe Ala Met Val Phe Gln  
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Glu Leu Asp Gln Gln Leu Glu Leu Leu Gly Leu Thr Gly Tyr Gly Ile  
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Ser Asp Thr Asn Leu Glu Glu Ile Phe Leu Lys Val Val Glu Asp Ala  
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His Arg Glu Gly Gly Asp Ser Arg Pro Gln Leu His Leu Arg Thr Cys  
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Thr Pro Gln Pro Pro Thr Gly Pro Glu Ala Ser Val Leu Glu Asn Gly  
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Glu Leu Ala Lys Leu Val Leu Asp Pro Gln Ala Pro Gln Gly Leu Ala  
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Pro Asn Ala Ala Gln Val Gln Gly Trp Thr Leu Thr Cys Gln Gln Leu  
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Arg Ala Leu Leu His Lys Arg Phe Leu Leu Ala Arg Arg Ser Arg Arg  
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Gly Leu Phe Ala Gln Val Val Leu Pro Ala Leu Phe Val Gly Leu Ala  
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Gln Leu Ser Pro Ala Met Tyr Gly Pro Gln Val Ser Phe Phe Ser Glu  
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Asp Ala Pro Gly Asp Pro Asn Arg Met Lys Leu Leu Glu Ala Leu Leu  
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Gly Glu Ala Gly Leu Gln Glu Pro Ser Met Gln Asp Lys Asp Ala Arg  
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Gly Ser Glu Cys Thr His Ser Leu Ala Cys Tyr Phe Thr Val Pro Glu  
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Val Pro Pro Asp Val Ala Ser Ile Leu Ala Ser Gly Asn Trp Thr Pro  
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Glu Ser Pro Ser Pro Ala Cys Gln Cys Ser Gln Pro Gly Ala Arg Arg  
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Leu Leu Pro Asp Cys Pro Ala Gly Ala Gly Gly Pro Pro Pro Pro Gln  
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Ala Val Ala Gly Leu Gly Glu Val Val Gln Asn Leu Thr Gly Arg Asn  
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Val Ser Asp Phe Leu Val Lys Thr Tyr Pro Ser Leu Val Arg Arg Gly  
1410 1415 1420

Leu Lys Thr Lys Lys Trp Val Asp Glu Val Arg Tyr Gly Gly Phe Ser  
1425 1430 1435 1440

Leu Gly Gly Arg Asp Pro Asp Leu Pro Thr Gly His Glu Val Val Arg  
1445 1450 1455

Thr Leu Ala Glu Ile Arg Ala Leu Leu Ser Pro Gln Pro Gly Asn Ala  
1460 1465 1470

Leu Asp Arg Ile Leu Asn Asn Leu Thr Gln Trp Ala Leu Gly Leu Asp  
1475 1480 1485

Ala Arg Asn Ser Leu Lys Ile Trp Phe Asn Asn Lys Gly Trp His Ala  
1490 1495 1500

Met Val Ala Phe Val Asn Arg Ala Asn Asn Gly Leu Leu His Ala Leu  
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Leu Pro Ser Gly Pro Val Arg His Ala His Ser Ile Thr Thr Leu Asn  
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His Pro Leu Asn Leu Thr Lys Glu Gln Leu Ser Glu Ala Thr Leu Ile  
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Ala Ser Ser Val Asp Val Leu Val Ser Ile Cys Val Val Phe Ala Met  
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Ser Phe Val Pro Ala Ser Phe Thr Leu Val Leu Ile Glu Glu Arg Ile  
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Thr Arg Ala Lys His Leu Gln Leu Val Ser Gly Leu Pro Gln Thr Leu  
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Tyr Trp Leu Gly Asn Phe Leu Trp Asp Met Cys Asn Tyr Leu Val Ala  
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Val Cys Ile Val Val Phe Ile Phe Leu Ala Phe Gln Gln Arg Ala Tyr  
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Val Ala Pro Glu Asn Leu Pro Ala Leu Leu Leu Leu Leu Leu Tyr  
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Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Phe Phe Ser  
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Val Pro Ser Thr Ala Tyr Val Val Leu Thr Cys Ile Asn Leu Phe Ile  
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Gly Ile Asn Ser Ser Met Ala Thr Phe Val Leu Glu Leu Leu Ser Asp  
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Gln Asn Leu Gln Glu Val Ser Arg Ile Leu Lys Gln Val Phe Leu Ile  
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Gln Ala Met Ala Asp Ala Phe Glu Arg Leu Gly Asp Lys Gln Phe Gln  
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Ser Pro Leu Arg Trp Asp Ile Ile Gly Lys Asn Leu Leu Ala Met Met  
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Ala Gln Gly Pro Leu Phe Leu Leu Ile Thr Leu Leu Leu Gln His Arg  
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Asn Arg Leu Leu Pro Gln Ser Lys Pro Arg Leu Leu Pro Pro Leu Gly  
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Glu Glu Asp Glu Asp Val Ala Gln Glu Arg Glu Arg Val Thr Lys Gly  
 1795 1800 1805

Ala Thr Gln Gly Asp Val Leu Val Leu Arg Asp Leu Thr Lys Val Tyr  
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Arg Gly Gln Arg Asn Pro Ala Val Asp Arg Leu Cys Leu Gly Ile Pro  
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Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly Lys Thr  
 1845 1850 1855

Ser Thr Phe Arg Met Val Thr Gly Asp Thr Leu Pro Ser Ser Gly Glu  
 1860 1865 1870

Ala Val Leu Ala Gly His Asn Val Ala Gln Glu Arg Ser Ala Ala His  
 1875 1880 1885

Arg Ser Met Gly Tyr Cys Pro Gln Ser Asp Ala Ile Phe Asp Leu Leu  
 1890 1895 1900

Thr Gly Arg Glu His Leu Glu Leu Phe Ala Arg Leu Arg Gly Val Pro  
 1905 1910 1915 1920

Glu Ala Gln Val Ala Gln Thr Ala Leu Ser Gly Leu Val Arg Leu Gly  
 1925 1930 1935

Leu Pro Ser Tyr Ala Asp Arg Pro Ala Gly Thr Tyr Ser Gly Gly Asn  
 1940 1945 1950

Lys Arg Lys Leu Ala Thr Ala Leu Ala Leu Val Gly Asp Pro Ala Val  
 1955 1960 1965

Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Ser Ala Arg Arg  
 1970 1975 1980

Phe Leu Trp Asn Ser Leu Leu Ser Val Val Arg Glu Gly Arg Ser Val  
 1985 1990 1995 2000

Val Leu Thr Ser His Ser Met Glu Glu Cys Glu Ala Leu Cys Thr Arg  
 2005 2010 2015

Leu Ala Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser Ser Gln  
 2020 2025 2030

His Leu Lys Gly Arg Phe Gly Ala Gly His Thr Leu Thr Leu Arg Val  
 2035 2040 2045

Pro Pro Asp Gln Pro Glu Pro Ala Ile Ala Phe Ile Arg Ile Thr Phe  
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Pro Gly Ala Glu Leu Arg Glu Val His Gly Ser Arg Leu Arg Phe Gln  
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Leu Pro Pro Gly Gly Arg Cys Thr Leu Thr Arg Val Phe Arg Glu Leu  
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Lys Leu Ile Pro Val Leu Arg Ala Val Gly Gly Gly Ala Arg Pro Gln  
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Lys Ile Leu Gln Arg Ala Ser Leu Asp Pro Val Leu Gly Gln Ala Gln

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Glu	Ala	Asn	Gln	Leu	Asn	Glu	Phe	Met	Gly	Pro	Glu	Val	Ala	Pro	Ala
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Arg	Asp	Leu	His	Glu	Leu	Trp	Gly	Val	Leu	Gly	Pro	Gln	Ile	Phe	Asn
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Phe	Met	Asn	Asp	Ser	Thr	Asn	Val	Ala	Met	Leu	Gln	Arg	Leu	Leu	Asp
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Val	Gly	Gly	Thr	Gly	Gln	Arg	Gln	Gln	Thr	Pro	Arg	Ala	Gln	Lys	Lys
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Leu	Glu	Ala	Ile	Lys	Asp	Phe	Leu	Asp	Pro	Ser	Arg	Gly	Gly	Tyr	Ser
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Trp	Arg	Glu	Ala	His	Ala	Asp	Met	Gly	Arg	Leu	Ala	Gly	Ile	Leu	Gly
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Gln	Met	Met	Glu	Cys	Val	Ser	Leu	Asp	Lys	Leu	Glu	Ala	Val	Pro	Ser
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Glu	Glu	Ala	Leu	Val	Ser	Arg	Ala	Leu	Glu	Leu	Leu	Gly	Glu	Arg	Arg
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Ser	Glu	Leu	Ser	Ser	Pro	Ala	Leu	Ser	Pro	Gly	His	Leu	Arg	Phe	Lys
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Ile	Arg	Met	Asp	Ile	Asp	Asp	Val	Thr	Arg	Thr	Asn	Lys	Ile	Arg	Asp

420					425					430					
Lys	Phe	Trp	Asp	Pro	Gly	Pro	Ser	Ala	Asp	Pro	Phe	Met	Asp	Leu	Arg
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Tyr	Val	Trp	Gly	Gly	Phe	Val	Tyr	Leu	Gln	Asp	Leu	Leu	Glu	Gln	Ala
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465						470					475				480
Gln	Gln	Met	Pro	His	Pro	Cys	Tyr	Val	Asp	Asp	Val	Phe	Leu	Arg	Val
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Val	Ala	Leu	Thr	Val	Lys	Ala	Val	Val	Arg	Glu	Lys	Glu	Thr	Arg	Leu
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Leu	Val	Leu	Val	Leu	Lys	Leu	Gly	Asn	Ile	Leu	Pro	Tyr	Ser	His	Pro
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Gln	Ser	Phe	Leu	Leu	Ser	Ala	Phe	Phe	Ser	Arg	Ala	Asn	Leu	Ala	Ala
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Cys	Val	Ala	Trp	Arg	Glu	Arg	Leu	His	Leu	Gly	Gly	Leu	Leu	Ala	Ala
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Ser	Leu	Leu	Ser	Pro	Val	Ala	Phe	Gly	Phe	Gly	Cys	Glu	Ser	Leu	Ala
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Gly	Pro	Ala	Glu	Asp	Val	Phe	Ser	Leu	Ala	Gln	Val	Ser	Ala	Phe	Leu
	675						680					685			
Leu	Leu	Asp	Ala	Val	Ile	Tyr	Gly	Leu	Ala	Leu	Trp	Tyr	Leu	Glu	Ala
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Val	Cys	Pro	Gly	Gln	Tyr	Gly	Ile	Pro	Glu	Pro	Trp	Asn	Phe	Pro	Phe
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Arg	Arg	Ser	Tyr	Trp	Cys	Gly	Pro	Gly	Pro	Pro	Lys	Ser	Ser	Val	Leu

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Gly	Leu	Val	Pro	Gly	Val	Ser	Ile	Arg	Gly	Leu	Lys	Lys	His	Phe	Arg				
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Thr	Leu	Ser	Ile	Leu	Ser	Gly	Leu	Phe	Pro	Pro	Ser	Ser	Gly	Ser	Ala				
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Ser	Ile	Leu	Gly	His	Asp	Val	Gln	Thr	Asn	Met	Ala	Ala	Ile	Arg	Pro				
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His	Leu	Gly	Ile	Cys	Pro	Gln	Tyr	Asn	Val	Leu	Phe	Asp	Met	Leu	Thr				
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Val	Glu	Glu	His	Val	Trp	Phe	Tyr	Gly	Arg	Leu	Lys	Gly	Val	Ser	Ala				
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Ala	Ala	Met	Gly	Pro	Glu	Arg	Glu	Arg	Leu	Ile	Arg	Asp	Val	Gly	Leu				
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Thr	Leu	Lys	Arg	Asp	Thr	Gln	Thr	Arg	His	Leu	Ser	Gly	Gly	Met	Gln				
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Arg	Lys	Leu	Ser	Val	Ala	Ile	Ala	Phe	Val	Gly	Gly	Ser	Arg	Val	Val				
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Ile	Met	Asp	Glu	Pro	Thr	Ala	Gly	Val	Asp	Pro	Ala	Ser	Arg	Arg	Gly				
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Ser	Thr	His	His	Leu	Asp	Glu	Ala	Glu	Leu	Leu	Gly	Asp	Arg	Val	Ala				
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Val Pro Ile Thr Pro Ser Thr Ala Arg Ile Leu Glu Leu Val Gln Gln			
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His Val Pro Gly Ala Gln Leu Val Glu Asp Leu Pro His Glu Leu Leu			
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Leu Val Leu Pro Tyr Ala Gly Ala Leu Asp Gly Ser Phe Ala Met Val			
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Phe Gln Glu Leu Asp Gln Gln Leu Glu Leu Leu Gly Leu Thr Gly Tyr			
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Gly Ile Ser Asp Thr Asn Leu Glu Glu Ile Phe Leu Lys Val Val Glu			
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Asp Ala His Arg Glu Gly Gly Asp Ser Arg Pro Gln Leu His Leu Arg			
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Thr Cys Thr Pro Gln Pro Pro Thr Gly Pro Glu Ala Ser Val Leu Glu			
1140	1145	1150	
Asn Gly Glu Leu Ala Lys Leu Val Leu Asp Pro Gln Ala Pro Gln Gly			
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Leu Ala Pro Asn Ala Ala Gln Val Gln Gly Trp Thr Leu Thr Cys Gln			
1170	1175	1180	
Gln Leu Arg Ala Leu Leu His Lys Arg Phe Leu Leu Ala Arg Arg Ser			
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Arg Arg Gly Leu Phe Ala Gln Val Val Leu Pro Ala Leu Phe Val Gly			
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Leu Ala Leu Phe Phe Ser Leu Ile Val Pro Pro Phe Gly Gln Tyr Pro			
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Pro Leu Gln Leu Ser Pro Ala Met Tyr Gly Pro Gln Val Ser Phe Phe			
1235	1240	1245	
Ser Glu Asp Ala Pro Gly Asp Pro Asn Arg Met Lys Leu Leu Glu Ala			
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Leu Leu Gly Glu Ala Gly Leu Gln Glu Pro Ser Met Gln Asp Lys Asp			
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Ala Arg Gly Ser Glu Cys Thr His Ser Leu Ala Cys Tyr Phe Thr Val			
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Pro Glu Val Pro Pro Asp Val Ala Ser Ile Leu Ala Ser Gly Asn Trp			
1300	1305	1310	
Thr Pro Glu Ser Pro Ser Pro Ala Cys Gln Cys Ser Gln Pro Gly Ala			
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Arg Asn Val Ser Asp Phe Leu Val Lys Thr Tyr Pro Ser Leu Val Arg		
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Arg Gly Leu Lys Thr Lys Lys Trp Val Asp Glu Val Arg Tyr Gly Gly		
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Phe Ser Leu Gly Gly Arg Asp Pro Asp Leu Pro Thr Gly His Glu Val		
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Val Arg Thr Leu Ala Glu Ile Arg Ala Leu Leu Ser Pro Gln Pro Gly		
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Asn Ala Leu Asp Arg Ile Leu Asn Asn Leu Thr Gln Trp Ala Leu Gly		
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Leu Asp Ala Arg Asn Ser Leu Lys Ile Trp Phe Asn Asn Lys Gly Trp		
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His Ala Met Val Ala Phe Val Asn Arg Ala Asn Asn Gly Leu Leu His		
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Leu Ile Ala Ser Ser Val Asp Val Leu Val Ser Ile Cys Val Val Phe		
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Ala Met Ser Phe Val Pro Ala Ser Phe Thr Leu Val Leu Ile Glu Glu		
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Arg Ile Thr Arg Ala Lys His Leu Gln Leu Val Ser Gly Leu Pro Gln		
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Thr Leu Tyr Trp Leu Gly Asn Phe Leu Trp Asp Met Cys Asn Tyr Leu		
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Val Ala Val Cys Ile Val Val Phe Ile Phe Leu Ala Phe Gln Gln Arg		
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Ala Tyr Val Ala Pro Glu Asn Leu Pro Ala Leu Leu Leu Leu Leu		
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Leu Tyr Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Phe		
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Phe Ser Val Pro Ser Thr Ala Tyr Val Val Leu Thr Cys Ile Asn Leu		
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Phe Ile Gly Ile Asn Ser Ser Met Ala Thr Phe Val Leu Glu Leu Leu		

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Ser Asp Gln Asn Leu Gln Glu Val	Ser Arg Ile Leu Lys Gln Val Phe	
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Leu Ile Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile Asp Met Val		
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Phe Gln Ser Pro Leu Arg Trp Asp Ile Ile Gly Lys Asn Leu Leu Ala		
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Met Met Ala Gln Gly Pro Leu Phe Leu Leu Ile Thr Leu Leu Leu Gln		
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Lys Gly Ala Thr Gln Gly Asp Val Leu Val Leu Arg Asp Leu Thr Lys		
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Val Tyr Arg Gly Gln Arg Asn Pro Ala Val Asp Arg Leu Cys Leu Gly		
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Ile Pro Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly		
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Lys Thr Ser Thr Phe Arg Met Val Thr Gly Asp Thr Leu Pro Ser Ser		
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Gly Glu Ala Val Leu Ala Gly His Asn Val Ala Gln Glu Arg Ser Ala		
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Ala His Arg Ser Met Gly Tyr Cys Pro Gln Ser Asp Ala Ile Phe Asp		
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Leu Leu Thr Gly Arg Glu His Leu Glu Leu Phe Ala Arg Leu Arg Gly		
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Val Pro Glu Ala Gln Val Ala Gln Thr Ala Leu Ser Gly Leu Val Arg		
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Leu Gly Leu Pro Ser Tyr Ala Asp Arg Pro Ala Gly Thr Tyr Ser Gly		
1890	1895	1900
Gly Asn Lys Arg Lys Leu Ala Thr Ala Leu Ala Leu Val Gly Asp Pro		
1905	1910	1915 1920
Ala Val Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Ser Ala		
1925	1930	1935
Arg Arg Phe Leu Trp Asn Ser Leu Leu Ser Val Val Arg Glu Gly Arg		



1940	1945	1950
Ser Val Val Leu Thr Ser His Ser Met Glu Glu Cys Glu Ala Leu Cys 1955	1960	1965
Thr Arg Leu Ala Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser 1970	1975	1980
Ser Gln His Leu Lys Gly Arg Phe Gly Ala Gly His Thr Leu Thr Leu 1985	1990	1995 2000
Arg Val Pro Pro Asp Gln Pro Glu Pro Ala Ile Ala Phe Ile Arg Ile 2005	2010	2015
Thr Phe Pro Gly Ala Glu Leu Arg Glu Val His Gly Ser Arg Leu Arg 2020	2025	2030
Phe Gln Leu Pro Pro Gly Gly Arg Cys Thr Leu Thr Arg Val Phe Arg 2035	2040	2045
Glu Leu Ala Ala Gln Gly Arg Ala His Gly Val Glu Asp Phe Ser Val 2050	2055	2060
Ser Gln Thr Thr Leu Glu Glu Val Phe Leu Tyr Phe Ser Lys Asp Gln 2065	2070	2075 2080
Gly Glu Glu Glu Glu Ser Ser Arg Gln Glu Ala Glu Glu Glu Glu Val 2085	2090	2095
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ctc ctg gtc gaa ttg ctg tgg cct ctc ttc ctc ttc ttc atc ctg gtg	329								
Leu Leu Val Glu Leu Leu Trp Pro Leu Phe Leu Phe Phe Ile Leu Val									
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Ala Val Arg His Ser His Pro Pro Leu Glu His His Glu Cys His Phe									
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cca aac aag cca ctg cca tcg gcg ggc acc gtg ccc tgg ctc cag ggt	425								
Pro Asn Lys Pro Leu Pro Ser Ala Gly Thr Val Pro Trp Leu Gln Gly									
60 65 70									
ctc atc tgt aat gtg aac aac acc tgc ttt ccg cag ctg aca ccg ggc	473								
Leu Ile Cys Asn Val Asn Asn Thr Cys Phe Pro Gln Leu Thr Pro Gly									
75 80 85									
gag gag ccc ggg cgc ctg agc aac ttc aac gac tcc ctg gtc tcc cgg	521								
Glu Glu Pro Gly Arg Leu Ser Asn Phe Asn Asp Ser Leu Val Ser Arg									
90 95 100									
ctg cta gcc gat gcc cgc act gtg ctg gga ggg gcc agt gcc cac agg	569								
Leu Leu Ala Asp Ala Arg Thr Val Leu Gly Gly Ala Ser Ala His Arg									
105 110 115 120									
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Thr Leu Ala Gly Leu Gly Lys Leu Ile Ala Thr Leu Arg Ala Ala Arg									
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Ser Thr Ala Gln Pro Gln Pro Thr Lys Gln Ser Pro Leu Glu Pro Pro									
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Glu Ala Ala Glu Asp Leu Ala Gln Glu Leu Leu Ala Leu Arg Ser Leu									
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Val Glu Leu Arg Ala Leu Leu Gln Arg Pro Arg Gly Thr Ser Gly Pro									
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Leu Glu Leu Leu Ser Glu Ala Leu Cys Ser Val Arg Gly Pro Ser Ser									

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gcc ctg caa ctg ctc gcg gaa cat cga ttc tgg gcc ggc gtc gtc ttc Ala Leu Gln Leu Leu Ala Glu His Arg Phe Trp Ala Gly Val Val Phe 425 430 435 440			1529
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Leu Gly Pro Gly His Val Arg Ile Lys Ile Arg Met Asp Ile Asp Val	
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Val Thr Arg Thr Asn Lys Ile Arg Asp Arg Phe Trp Asp Pro Gly Pro	
475 480 485	
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Ala Ala Asp Pro Leu Thr Asp Leu Arg Tyr Val Trp Gly Gly Phe Val	
490 495 500	
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Tyr Leu Gln Asp Leu Val Glu Arg Ala Ala Val Arg Val Leu Ser Gly	
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Ala Asn Pro Arg Ala Gly Leu Tyr Leu Gln Gln Met Pro Tyr Pro Cys	
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Tyr Val Asp Asp Val Phe Leu Arg Val Leu Ser Arg Ser Leu Pro Leu	
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Phe Leu Thr Leu Ala Trp Ile Tyr Ser Val Thr Leu Thr Val Lys Ala	
555 560 565	
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Val Val Arg Glu Lys Glu Thr Arg Leu Arg Asp Thr Met Arg Ala Met	
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Gly Asp Ile Leu Pro Tyr Ser His Pro Gly Val Val Phe Leu Phe Leu	
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Ala Ala Phe Ala Val Ala Thr Val Thr Gln Ser Phe Leu Leu Ser Ala	
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Phe Phe Ser Arg Ala Asn Lys Ala Ala Ala Cys Gly Gly Leu Ala Tyr	
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Gly Ala Gln Trp His Asn Val Gly Thr Arg Pro Thr Ala Asp Val Phe	
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Ser Leu Ala Gln Val Ser Gly Leu Leu Leu Leu Asp Ala Ala Leu Tyr	
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745 750 755 760	
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Pro Arg Pro Pro Lys Ser Pro Ala Pro Cys Pro Thr Pro Leu Asp Pro	
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Lys Val Leu Val Glu Glu Ala Pro Pro Gly Leu Ser Pro Gly Val Ser	
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Val Arg Ser Leu Glu Lys Arg Phe Pro Gly Ser Pro Gln Pro Ala Leu	
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Arg Gly Leu Ser Leu Asp Phe Tyr Gln Gly His Ile Thr Ala Phe Leu	
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Gly His Asn Gly Ala Gly Lys Thr Thr Thr Leu Ser Ile Leu Ser Gly	
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Leu Phe Pro Pro Ser Gly Gly Ser Ala Phe Ile Leu Gly His Asp Val	
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Arg Ser Ser Met Ala Ala Ile Arg Pro His Leu Gly Val Cys Pro Gln	
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Tyr Asn Val Leu Phe Asp Met Leu Thr Val Asp Glu His Val Trp Phe	
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Asp	Arg	Leu	Leu	Gln	Asp	Val	Gly	Leu	Val	Ser	Lys	Gln	Ser	Val	Gln		
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act	cgc	cac	ctc	tct	ggg	ggg	atg	caa	cgg	aag	ctg	tcc	gtg	gcc	att		3065
Thr	Arg	His	Leu	Ser	Gly	Gly	Met	Gln	Arg	Lys	Leu	Ser	Val	Ala	Ile		
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Ala	Phe	Val	Gly	Gly	Ser	Gln	Val	Val	Ile	Leu	Asp	Glu	Pro	Thr	Ala		
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ggc	gtg	gat	cct	gct	tcc	cgc	cgc	ggg	att	tgg	gag	ctg	ctg	ctc	aaa		3161
Gly	Val	Asp	Pro	Ala	Ser	Arg	Arg	Gly	Ile	Trp	Glu	Leu	Leu	Leu	Lys		
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Tyr	Arg	Glu	Gly	Arg	Thr	Leu	Ile	Leu	Ser	Thr	His	His	Leu	Asp	Glu		
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			1020					1025					1030				
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Tyr	Tyr	Leu	Thr	Leu	Val	Lys	Ala	Arg	Leu	Pro	Leu	Thr	Thr	Asn	Glu		
		1035					1040					1045					
aag	gct	gac	act	gac	atg	gag	ggc	agt	gtg	gac	acc	agg	cag	gaa	aag		3401
Lys	Ala	Asp	Thr	Asp	Met	Glu	Gly	Ser	Val	Asp	Thr	Arg	Gln	Glu	Lys		
	1050					1055				1060							
aag	aat	ggc	agc	cag	ggc	agc	aga	gtc	ggc	act	cct	cag	ctg	ctg	gcc		3449
Lys	Asn	Gly	Ser	Gln	Gly	Ser	Arg	Val	Gly	Thr	Pro	Gln	Leu	Leu	Ala		
	1065				1070				1075					1080			
ctg	gta	cag	cac	tgg	gtg	ccc	ggg	gca	cgg	ctg	gtg	gag	gag	ctg	cca		3497
Leu	Val	Gln	His	Trp	Val	Pro	Gly	Ala	Arg	Leu	Val	Glu	Glu	Leu	Pro		
				1085				1090					1095				
cac	gag	ctg	gtg	ctg	gtg	ctg	ccc	tac	acg	ggg	gcc	cat	gac	ggc	agc		3545
His	Glu	Leu	Val	Leu	Val	Leu	Pro	Tyr	Thr	Gly	Ala	His	Asp	Gly	Ser		
			1100					1105				1110					
ttc	gcc	aca	ctc	ttc	cga	gag	cta	gac	acg	cgg	ctg	gcg	gag	ctg	agg		3593
Phe	Ala	Thr	Leu	Phe	Arg	Glu	Leu	Asp	Thr	Arg	Leu	Ala	Glu	Leu	Arg		
		1115					1120					1125					
ctc	act	ggc	tac	ggg	atc	tcc	gac	acc	agc	ctc	gag	gag	atc	ttc	ctg		3641
Leu	Thr	Gly	Tyr	Gly	Ile	Ser	Asp	Thr	Ser	Leu	Glu	Glu	Ile	Phe	Leu		

1130	1135	1140	
aag gtg gtg gag gag tgt gct gcg gac aca gat atg gag gat ggc agc			3689
Lys Val Val Glu Glu Cys Ala Ala Asp Thr Asp Met Glu Asp Gly Ser			
1145	1150	1155	1160
tgc ggg cag cac cta tgc aca ggc att gct ggc cta gac gta acc ctg			3737
Cys Gly Gln His Leu Cys Thr Gly Ile Ala Gly Leu Asp Val Thr Leu			
1165	1170	1175	
cgg ctc aag atg ccg cca cag gag aca gcg ctg gag aac ggg gaa cca			3785
Arg Leu Lys Met Pro Pro Gln Glu Thr Ala Leu Glu Asn Gly Glu Pro			
1180	1185	1190	
gct ggg tca gcc cca gag act gac cag ggc tct ggg cca gac gcc gtg			3833
Ala Gly Ser Ala Pro Glu Thr Asp Gln Gly Ser Gly Pro Asp Ala Val			
1195	1200	1205	
ggc cgg gta cag ggc tgg gca ctg acc cgc cag cag ctc cag gcc ctg			3881
Gly Arg Val Gln Gly Trp Ala Leu Thr Arg Gln Gln Leu Gln Ala Leu			
1210	1215	1220	
ctt ctc aag cgc ttt ctg ctt gcc cgc cgc agc cgc cgc ggc ctg ttc			3929
Leu Leu Lys Arg Phe Leu Leu Ala Arg Arg Ser Arg Arg Gly Leu Phe			
1225	1230	1235	1240
gcc cag atc gtg ctg cct gcc ctc ttt gtg ggc ctg gcc ctc gtg ttc			3977
Ala Gln Ile Val Leu Pro Ala Leu Phe Val Gly Leu Ala Leu Val Phe			
1245	1250	1255	
agc ctc atc gtg cct cct ttc ggg cac tac ccg gct ctg cgg ctc agt			4025
Ser Leu Ile Val Pro Pro Phe Gly His Tyr Pro Ala Leu Arg Leu Ser			
1260	1265	1270	
ccc acc atg tac ggt gct cag gtg tcc ttc ttc agt gag gac gcc cca			4073
Pro Thr Met Tyr Gly Ala Gln Val Ser Phe Phe Ser Glu Asp Ala Pro			
1275	1280	1285	
ggg gac cct gga cgt gcc cgg ctg ctc gag gcg ctg ctg cag gag gca			4121
Gly Asp Pro Gly Arg Ala Arg Leu Leu Glu Ala Leu Leu Gln Glu Ala			
1290	1295	1300	
gga ctg gag gag ccc cca gtg cag cat agc tcc cac agg ttc tcg gca			4169
Gly Leu Glu Glu Pro Pro Val Gln His Ser Ser His Arg Phe Ser Ala			
1305	1310	1315	1320
cca gaa gtt cct gct gaa gtg gcc aag gtc ttg gcc agt ggc aac tgg			4217
Pro Glu Val Pro Ala Glu Val Ala Lys Val Leu Ala Ser Gly Asn Trp			
1325	1330	1335	
acc cca gag tct cca tcc cca gcc tgc cag tgt agc cag ccc ggt gcc			4265
Thr Pro Glu Ser Pro Ser Pro Ala Cys Gln Cys Ser Gln Pro Gly Ala			
1340	1345	1350	
cgg cgc ctg ctg ccc gac tgc ccg gct gca gct ggt ggt ccc cct ccg			4313
Arg Arg Leu Leu Pro Asp Cys Pro Ala Ala Ala Gly Gly Pro Pro Pro			
1355	1360	1365	

ccc cag gca gtg acc ggc tct ggg gaa gtg gtt cag aac ctg aca ggc Pro Gln Ala Val Thr Gly Ser Gly Glu Val Val Gln Asn Leu Thr Gly 1370 1375 1380	4361
cgg aac ctg tct gac ttc ctg gtc aag acc tac ccg cgc ctg gtg cgc Arg Asn Leu Ser Asp Phe Leu Val Lys Thr Tyr Pro Arg Leu Val Arg 1385 1390 1395 1400	4409
cag ggc ctg aag act aag aag tgg gtg aat gag gtc agg tac gga ggc Gln Gly Leu Lys Thr Lys Lys Trp Val Asn Glu Val Arg Tyr Gly Gly 1405 1410 1415	4457
ttc tcg ctg ggg ggc cga gac cca ggc ctg ccc tcg ggc caa gag ttg Phe Ser Leu Gly Gly Arg Asp Pro Gly Leu Pro Ser Gly Gln Glu Leu 1420 1425 1430	4505
ggc cgc tca gtg gag gag ttg tgg gcg ctg ctg agt ccc ctg cct ggc Gly Arg Ser Val Glu Glu Leu Trp Ala Leu Leu Ser Pro Leu Pro Gly 1435 1440 1445	4553
ggg gcc ctc gac cgt gtc ctg aaa aac ctc aca gcc tgg gct cac agc Gly Ala Leu Asp Arg Val Leu Lys Asn Leu Thr Ala Trp Ala His Ser 1450 1455 1460	4601
ctg gat gct cag gac agt ctc aag atc tgg ttc aac aac aaa ggc tgg Leu Asp Ala Gln Asp Ser Leu Lys Ile Trp Phe Asn Asn Lys Gly Trp 1465 1470 1475 1480	4649
cac tcc atg gtg gcc ttt gtc aac cga gcc agc aac gca atc ctc cgt His Ser Met Val Ala Phe Val Asn Arg Ala Ser Asn Ala Ile Leu Arg 1485 1490 1495	4697
gct cac ctg ccc cca ggc ccg gcc cgc cac gcc cac agc atc acc aca Ala His Leu Pro Pro Gly Pro Ala Arg His Ala His Ser Ile Thr Thr 1500 1505 1510	4745
ctc aac cac ccc ttg aac ctc acc aag gag cag ctg tct gag gct gca Leu Asn His Pro Leu Asn Leu Thr Lys Glu Gln Leu Ser Glu Ala Ala 1515 1520 1525	4793
ctg atg gcc tcc tcg gtg gac gtc ctc gtc tcc atc tgt gtg gtc ttt Leu Met Ala Ser Ser Val Asp Val Leu Val Ser Ile Cys Val Val Phe 1530 1535 1540	4841
gcc atg tcc ttt gtc ccg gcc agc ttc act ctt gtc ctc att gag gag Ala Met Ser Phe Val Pro Ala Ser Phe Thr Leu Val Leu Ile Glu Glu 1545 1550 1555 1560	4889
cga gtc acc cga gcc aag cac ctg cag ctc atg ggg ggc ctg tcc ccc Arg Val Thr Arg Ala Lys His Leu Gln Leu Met Gly Gly Leu Ser Pro 1565 1570 1575	4937
acc ctc tac tgg ctt ggc aac ttt ctc tgg gac atg tgt aac tac ttg Thr Leu Tyr Trp Leu Gly Asn Phe Leu Trp Asp Met Cys Asn Tyr Leu 1580 1585 1590	4985



gtg cca gca tgc atc gtg gtg ctc atc ttt ctg gcc ttc cag cag agg	5033
Val Pro Ala Cys Ile Val Val Leu Ile Phe Leu Ala Phe Gln Gln Arg	
1595 1600 1605	
gca tat gtg gcc cct gcc aac ctg cct gct ctc ctg ctg ttg cta cta	5081
Ala Tyr Val Ala Pro Ala Asn Leu Pro Ala Leu Leu Leu Leu Leu Leu	
1610 1615 1620	
ctg tat ggc tgg tgg atc aca ccg ctc atg tac cca gcc tcc ttc ttc	5129
Leu Tyr Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Phe	
1625 1630 1635 1640	
ttc tcc gtg ccc agc aca gcc tat gtg gtg ctc acc tgc ata aac ctc	5177
Phe Ser Val Pro Ser Thr Ala Tyr Val Val Leu Thr Cys Ile Asn Leu	
1645 1650 1655	
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Phe Ile Gly Ile Asn Gly Ser Met Ala Thr Phe Val Leu Glu Leu Phe	
1660 1665 1670	
tct gat cag aag ctg cag gag gtg agc cgg atc ttg aaa cag gtc ttc	5273
Ser Asp Gln Lys Leu Gln Glu Val Ser Arg Ile Leu Lys Gln Val Phe	
1675 1680 1685	
ctt atc ttc ccc cac ttc tgc ttg ggc cgg ggg ctc att gac atg gtg	5321
Leu Ile Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile Asp Met Val	
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Arg Asn Gln Ala Met Ala Asp Ala Phe Glu Arg Leu Gly Asp Arg Gln	
1705 1710 1715 1720	
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Phe Gln Ser Pro Leu Arg Trp Glu Val Val Gly Lys Asn Leu Leu Ala	
1725 1730 1735	
atg gtg ata cag ggg ccc ctc ttc ctt ctc ttc aca cta ctg ctg cag	5465
Met Val Ile Gln Gly Pro Leu Phe Leu Leu Phe Thr Leu Leu Leu Gln	
1740 1745 1750	
cac cga agc caa ctc ctg cca cag ccc agg gtg agg tct ctg cca ctc	5513
His Arg Ser Gln Leu Leu Pro Gln Pro Arg Val Arg Ser Leu Pro Leu	
1755 1760 1765	
ctg gga gag gag gac gag gat gta gcc cgt gaa cgg gag cgg gtg gtc	5561
Leu Gly Glu Glu Asp Glu Asp Val Ala Arg Glu Arg Glu Arg Val Val	
1770 1775 1780	
caa gga gcc acc cag ggg gat gtg ttg gtg ctg agg aac ttg acc aag	5609
Gln Gly Ala Thr Gln Gly Asp Val Leu Val Leu Arg Asn Leu Thr Lys	
1785 1790 1795 1800	
gta tac cgt ggg cag agg atg cca gct gtt gac cgc ttg tgc ctg ggg	5657
Val Tyr Arg Gly Gln Arg Met Pro Ala Val Asp Arg Leu Cys Leu Gly	
1805 1810 1815	
att ccc cct ggt gag tgt ttt ggg ctg ctg ggt gtg aat gga gca ggg	5705

Ile	Pro	Pro	Gly	Glu	Cys	Phe	Gly	Leu	Leu	Gly	Val	Asn	Gly	Ala	Gly		
			1820					1825					1830				
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Lys	Thr	Ser	Thr	Phe	Arg	Met	Val	Thr	Gly	Asp	Thr	Leu	Ala	Ser	Arg		
		1835					1840					1845					
ggc	gag	gct	gtg	ctg	gca	ggc	cac	agc	gtg	gcc	cgg	gaa	ccc	agt	gct	5801	
Gly	Glu	Ala	Val	Leu	Ala	Gly	His	Ser	Val	Ala	Arg	Glu	Pro	Ser	Ala		
		1850				1855					1860						
gcg	cac	ctc	agc	atg	gga	tac	tgc	cct	caa	tcc	gat	gcc	atc	ttt	gag	5849	
Ala	His	Leu	Ser	Met	Gly	Tyr	Cys	Pro	Gln	Ser	Asp	Ala	Ile	Phe	Glu		
		1865				1870				1875				1880			
ctg	ctg	acg	ggc	cgc	gag	cac	ctg	gag	ctg	ctt	gcg	cgc	ctg	cgc	ggt	5897	
Leu	Leu	Thr	Gly	Arg	Glu	His	Leu	Glu	Leu	Leu	Ala	Arg	Leu	Arg	Gly		
			1885					1890						1895			
gtc	ccg	gag	gcc	cag	gtt	gcc	cag	acc	gct	ggc	tca	ggc	ctg	gcg	cgt	5945	
Val	Pro	Glu	Ala	Gln	Val	Ala	Gln	Thr	Ala	Gly	Ser	Gly	Leu	Ala	Arg		
		1900					1905					1910					
ctg	gga	ctc	tca	tgg	tac	gca	gac	cgg	cct	gca	ggc	acc	tac	agc	gga	5993	
Leu	Gly	Leu	Ser	Trp	Tyr	Ala	Asp	Arg	Pro	Ala	Gly	Thr	Tyr	Ser	Gly		
		1915					1920				1925						
ggg	aac	aaa	cgc	aag	ctg	gcg	acg	gcc	ctg	gcg	ctg	gtt	ggg	gac	cca	6041	
Gly	Asn	Lys	Arg	Lys	Leu	Ala	Thr	Ala	Leu	Ala	Leu	Val	Gly	Asp	Pro		
		1930				1935					1940						
gcc	gtg	gtg	ttt	ctg	gac	gag	ccg	acc	aca	ggc	atg	gac	ccc	agc	gcg	6089	
Ala	Val	Val	Phe	Leu	Asp	Glu	Pro	Thr	Thr	Gly	Met	Asp	Pro	Ser	Ala		
		1945			1950					1955				1960			
cgg	cgc	ttc	ctt	tgg	aac	agc	ctt	ttg	gcc	gtg	gtg	cgg	gag	ggc	cgt	6137	
Arg	Arg	Phe	Leu	Trp	Asn	Ser	Leu	Leu	Ala	Val	Val	Arg	Glu	Gly	Arg		
			1965					1970						1975			
tca	gtg	atg	ctc	acc	tcc	cat	agc	atg	gag	gag	tgt	gaa	gcg	ctc	tgc	6185	
Ser	Val	Met	Leu	Thr	Ser	His	Ser	Met	Glu	Glu	Cys	Glu	Ala	Leu	Cys		
			1980					1985						1990			
tcg	cgc	cta	gcc	atc	atg	gtg	aat	ggg	cgg	ttc	cgc	tgc	ctg	ggc	agc	6233	
Ser	Arg	Leu	Ala	Ile	Met	Val	Asn	Gly	Arg	Phe	Arg	Cys	Leu	Gly	Ser		
		1995				2000					2005						
ccg	caa	cat	ctc	aag	ggc	aga	ttc	gcg	gcg	ggt	cac	aca	ctg	acc	ctg	6281	
Pro	Gln	His	Leu	Lys	Gly	Arg	Phe	Ala	Ala	Gly	His	Thr	Leu	Thr	Leu		
		2010				2015					2020						
cgg	gtg	ccc	gcc	gca	agg	tcc	cag	ccg	gca	gcg	gcc	ttc	gtg	gcg	gcc	6329	
Arg	Val	Pro	Ala	Ala	Arg	Ser	Gln	Pro	Ala	Ala	Ala	Phe	Val	Ala	Ala		
		2025				2030				2035					2040		
gag	ttc	cct	ggg	tcg	gag	ctg	cgc	gag	gca	cat	gga	ggc	cgc	ctg	cgc	6377	
Glu	Phe	Pro	Gly	Ser	Glu	Leu	Arg	Glu	Ala	His	Gly	Gly	Arg	Leu	Arg		

2045	2050	2055	
ttc cag ctg ccg ccg gga ggg cgc tgc gcc ctg gcg cgc gtc ttt gga			6425
Phe Gln Leu Pro Pro Gly Gly Arg Cys Ala Leu Ala Arg Val Phe Gly			
2060	2065	2070	
gag ctg gcg gtg cac ggc gca gag cac ggc gtg gag gac ttt tcc gtg			6473
Glu Leu Ala Val His Gly Ala Glu His Gly Val Glu Asp Phe Ser Val			
2075	2080	2085	
agc cag acg atg ctg gag gag gta ttc ttg tac ttc tcc aag gac cag			6521
Ser Gln Thr Met Leu Glu Glu Val Phe Leu Tyr Phe Ser Lys Asp Gln			
2090	2095	2100	
ggg aag gac gag gac acc gaa gag cag aag gag gca gga gtg gga gtg			6569
Gly Lys Asp Glu Asp Thr Glu Glu Gln Lys Glu Ala Gly Val Gly Val			
2105	2110	2115	2120
gac ccc gcg cca ggc ctg cag cac ccc aaa cgc gtc agc cag ttc ctc			6617
Asp Pro Ala Pro Gly Leu Gln His Pro Lys Arg Val Ser Gln Phe Leu			
2125	2130	2135	
gat gac cct agc act gcc gag act gtg ctc tga gcctccctcc cctgcggggc			6670
Asp Asp Pro Ser Thr Ala Glu Thr Val Leu			
2140	2145		
cgcggggagg ccctgggaat ggcaagggca aggtagagtg cctaggagcc ctggactcag			6730
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<212> PRT			
<213> Homo sapiens			
<400> 5			
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1	5	10	15
Tyr Arg Arg Arg Gln Pro Val Gln Leu Leu Val Glu Leu Leu Trp Pro			
20	25	30	
Leu Phe Leu Phe Phe Ile Leu Val Ala Val Arg His Ser His Pro Pro			
35	40	45	
Leu Glu His His Glu Cys His Phe Pro Asn Lys Pro Leu Pro Ser Ala			
50	55	60	
Gly Thr Val Pro Trp Leu Gln Gly Leu Ile Cys Asn Val Asn Asn Thr			
65	70	75	80
Cys Phe Pro Gln Leu Thr Pro Gly Glu Glu Pro Gly Arg Leu Ser Asn			
85	90	95	

Phe Asn Asp Ser Leu Val Ser Arg Leu Leu Ala Asp Ala Arg Thr Val  
 100 105 110  
 Leu Gly Gly Ala Ser Ala His Arg Thr Leu Ala Gly Leu Gly Lys Leu  
 115 120 125  
 Ile Ala Thr Leu Arg Ala Ala Arg Ser Thr Ala Gln Pro Gln Pro Thr  
 130 135 140  
 Lys Gln Ser Pro Leu Glu Pro Pro Met Leu Asp Val Ala Glu Leu Leu  
 145 150 155 160  
 Thr Ser Leu Leu Arg Thr Glu Ser Leu Gly Leu Ala Leu Gly Gln Ala  
 165 170 175  
 Gln Glu Pro Leu His Ser Leu Leu Glu Ala Ala Glu Asp Leu Ala Gln  
 180 185 190  
 Glu Leu Leu Ala Leu Arg Ser Leu Val Glu Leu Arg Ala Leu Leu Gln  
 195 200 205  
 Arg Pro Arg Gly Thr Ser Gly Pro Leu Glu Leu Leu Ser Glu Ala Leu  
 210 215 220  
 Cys Ser Val Arg Gly Pro Ser Ser Thr Val Gly Pro Ser Leu Asn Trp  
 225 230 235 240  
 Tyr Glu Ala Ser Asp Leu Met Glu Leu Val Gly Gln Glu Pro Glu Ser  
 245 250 255  
 Ala Leu Pro Asp Ser Ser Leu Ser Pro Ala Cys Ser Glu Leu Ile Gly  
 260 265 270  
 Ala Leu Asp Ser His Pro Leu Ser Arg Leu Leu Trp Arg Arg Leu Lys  
 275 280 285  
 Pro Leu Ile Leu Gly Lys Leu Leu Phe Ala Pro Asp Thr Pro Phe Thr  
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 Arg Lys Leu Met Ala Gln Val Asn Arg Thr Phe Glu Glu Leu Thr Leu  
 305 310 315 320  
 Leu Arg Asp Val Arg Glu Val Trp Glu Met Leu Gly Pro Arg Ile Phe  
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 Thr Phe Met Asn Asp Ser Ser Asn Val Ala Met Leu Gln Arg Leu Leu  
 340 345 350  
 Gln Met Gln Asp Glu Gly Arg Arg Gln Pro Arg Pro Gly Gly Arg Asp  
 355 360 365  
 His Met Glu Ala Leu Arg Ser Phe Leu Asp Pro Gly Ser Gly Gly Tyr  
 370 375 380  
 Ser Trp Gln Asp Ala His Ala Asp Val Gly His Leu Val Gly Thr Leu  
 385 390 395 400

Gly Arg Val Thr Glu Cys Leu Ser Leu Asp Lys Leu Glu Ala Ala Pro  
 405 410 415  
 Ser Glu Ala Ala Leu Val Ser Arg Ala Leu Gln Leu Leu Ala Glu His  
 420 425 430  
 Arg Phe Trp Ala Gly Val Val Phe Leu Gly Pro Glu Asp Ser Ser Asp  
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 Pro Thr Glu His Pro Thr Pro Asp Leu Gly Pro Gly His Val Arg Ile  
 450 455 460  
 Lys Ile Arg Met Asp Ile Asp Val Val Thr Arg Thr Asn Lys Ile Arg  
 465 470 475 480  
 Asp Arg Phe Trp Asp Pro Gly Pro Ala Ala Asp Pro Leu Thr Asp Leu  
 485 490 495  
 Arg Tyr Val Trp Gly Gly Phe Val Tyr Leu Gln Asp Leu Val Glu Arg  
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 Ala Ala Val Arg Val Leu Ser Gly Ala Asn Pro Arg Ala Gly Leu Tyr  
 515 520 525  
 Leu Gln Gln Met Pro Tyr Pro Cys Tyr Val Asp Asp Val Phe Leu Arg  
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 Val Leu Ser Arg Ser Leu Pro Leu Phe Leu Thr Leu Ala Trp Ile Tyr  
 545 550 555 560  
 Ser Val Thr Leu Thr Val Lys Ala Val Val Arg Glu Lys Glu Thr Arg  
 565 570 575  
 Leu Arg Asp Thr Met Arg Ala Met Gly Leu Ser Arg Ala Val Leu Trp  
 580 585 590  
 Leu Gly Trp Phe Leu Ser Cys Leu Gly Pro Phe Leu Leu Ser Ala Ala  
 595 600 605  
 Leu Leu Val Leu Val Leu Lys Leu Gly Asp Ile Leu Pro Tyr Ser His  
 610 615 620  
 Pro Gly Val Val Phe Leu Phe Leu Ala Ala Phe Ala Val Ala Thr Val  
 625 630 635 640  
 Thr Gln Ser Phe Leu Leu Ser Ala Phe Phe Ser Arg Ala Asn Leu Ala  
 645 650 655  
 Ala Ala Cys Gly Gly Leu Ala Tyr Phe Ser Leu Tyr Leu Pro Tyr Val  
 660 665 670  
 Leu Cys Val Ala Trp Arg Asp Arg Leu Pro Ala Gly Gly Arg Val Ala  
 675 680 685  
 Ala Ser Leu Leu Ser Pro Val Ala Phe Gly Phe Gly Cys Glu Ser Leu  
 690 695 700

Ala Leu Leu Glu Glu Gln Gly Glu Gly Ala Gln Trp His Asn Val Gly  
 705 710 715 720  
 Thr Arg Pro Thr Ala Asp Val Phe Ser Leu Ala Gln Val Ser Gly Leu  
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 740 745 750  
 Ala Val Cys Pro Gly Gln Tyr Gly Ile Pro Glu Pro Trp Asn Phe Pro  
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 Phe Arg Arg Ser Tyr Trp Cys Gly Pro Arg Pro Pro Lys Ser Pro Ala  
 770 775 780  
 Pro Cys Pro Thr Pro Leu Asp Pro Lys Val Leu Val Glu Glu Ala Pro  
 785 790 795 800  
 Pro Gly Leu Ser Pro Gly Val Ser Val Arg Ser Leu Glu Lys Arg Phe  
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 Pro Gly Ser Pro Gln Pro Ala Leu Arg Gly Leu Ser Leu Asp Phe Tyr  
 820 825 830  
 Gln Gly His Ile Thr Ala Phe Leu Gly His Asn Gly Ala Gly Lys Thr  
 835 840 845  
 Thr Thr Leu Ser Ile Leu Ser Gly Leu Phe Pro Pro Ser Gly Gly Ser  
 850 855 860  
 Ala Phe Ile Leu Gly His Asp Val Arg Ser Ser Met Ala Ala Ile Arg  
 865 870 875 880  
 Pro His Leu Gly Val Cys Pro Gln Tyr Asn Val Leu Phe Asp Met Leu  
 885 890 895  
 Thr Val Asp Glu His Val Trp Phe Tyr Gly Arg Leu Lys Gly Leu Ser  
 900 905 910  
 Ala Ala Val Val Gly Pro Glu Gln Asp Arg Leu Leu Gln Asp Val Gly  
 915 920 925  
 Leu Val Ser Lys Gln Ser Val Gln Thr Arg His Leu Ser Gly Gly Met  
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 Gln Arg Lys Leu Ser Val Ala Ile Ala Phe Val Gly Gly Ser Gln Val  
 945 950 955 960  
 Val Ile Leu Asp Glu Pro Thr Ala Gly Val Asp Pro Ala Ser Arg Arg  
 965 970 975  
 Gly Ile Trp Glu Leu Leu Leu Lys Tyr Arg Glu Gly Arg Thr Leu Ile  
 980 985 990  
 Leu Ser Thr His His Leu Asp Glu Ala Glu Leu Leu Gly Asp Arg Val  
 995 1000 1005

Ala Val Val Ala Gly Gly Arg Leu Cys Cys Cys Gly Ser Pro Leu Phe  
 1010 1015 1020

Leu Arg Arg His Leu Gly Ser Gly Tyr Tyr Leu Thr Leu Val Lys Ala  
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Arg Leu Pro Leu Thr Thr Asn Glu Lys Ala Asp Thr Asp Met Glu Gly  
 1045 1050 1055

Ser Val Asp Thr Arg Gln Glu Lys Lys Asn Gly Ser Gln Gly Ser Arg  
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Val Gly Thr Pro Gln Leu Leu Ala Leu Val Gln His Trp Val Pro Gly  
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Ala Arg Leu Val Glu Glu Leu Pro His Glu Leu Val Leu Val Leu Pro  
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Tyr Thr Gly Ala His Asp Gly Ser Phe Ala Thr Leu Phe Arg Glu Leu  
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Thr Ser Leu Glu Glu Ile Phe Leu Lys Val Val Glu Glu Cys Ala Ala  
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Ile Ala Gly Leu Asp Val Thr Leu Arg Leu Lys Met Pro Pro Gln Glu  
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Thr Ala Leu Glu Asn Gly Glu Pro Ala Gly Ser Ala Pro Glu Thr Asp  
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Gln Gly Ser Gly Pro Asp Ala Val Gly Arg Val Gln Gly Trp Ala Leu  
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Thr Arg Gln Gln Leu Gln Ala Leu Leu Leu Lys Arg Phe Leu Leu Ala  
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Arg Arg Ser Arg Arg Gly Leu Phe Ala Gln Ile Val Leu Pro Ala Leu  
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Phe Val Gly Leu Ala Leu Val Phe Ser Leu Ile Val Pro Pro Phe Gly  
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His Tyr Pro Ala Leu Arg Leu Ser Pro Thr Met Tyr Gly Ala Gln Val  
 1265 1270 1275 1280

Ser Phe Phe Ser Glu Asp Ala Pro Gly Asp Pro Gly Arg Ala Arg Leu  
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Leu Glu Ala Leu Leu Gln Glu Ala Gly Leu Glu Glu Pro Pro Val Gln  
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His Ser Ser His Arg Phe Ser Ala Pro Glu Val Pro Ala Glu Val Ala  
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Lys Val Leu Ala Ser Gly Asn Trp Thr Pro Glu Ser Pro Ser Pro Ala  
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Cys Gln Cys Ser Gln Pro Gly Ala Arg Arg Leu Leu Pro Asp Cys Pro  
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Ala Ala Ala Gly Gly Pro Pro Pro Pro Gln Ala Val Thr Gly Ser Gly  
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Glu Val Val Gln Asn Leu Thr Gly Arg Asn Leu Ser Asp Phe Leu Val  
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Lys Thr Tyr Pro Arg Leu Val Arg Gln Gly Leu Lys Thr Lys Lys Trp  
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Val Asn Glu Val Arg Tyr Gly Gly Phe Ser Leu Gly Gly Arg Asp Pro  
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Gly Leu Pro Ser Gly Gln Glu Leu Gly Arg Ser Val Glu Glu Leu Trp  
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Ala Leu Leu Ser Pro Leu Pro Gly Gly Ala Leu Asp Arg Val Leu Lys  
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Asn Leu Thr Ala Trp Ala His Ser Leu Asp Ala Gln Asp Ser Leu Lys  
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Ile Trp Phe Asn Asn Lys Gly Trp His Ser Met Val Ala Phe Val Asn  
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Arg Ala Ser Asn Ala Ile Leu Arg Ala His Leu Pro Pro Gly Pro Ala  
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Arg His Ala His Ser Ile Thr Thr Leu Asn His Pro Leu Asn Leu Thr  
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Lys Glu Gln Leu Ser Glu Ala Ala Leu Met Ala Ser Ser Val Asp Val  
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Leu Val Ser Ile Cys Val Val Phe Ala Met Ser Phe Val Pro Ala Ser  
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Phe Thr Leu Val Leu Ile Glu Glu Arg Val Thr Arg Ala Lys His Leu  
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Gln Leu Met Gly Gly Leu Ser Pro Thr Leu Tyr Trp Leu Gly Asn Phe  
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Leu Trp Asp Met Cys Asn Tyr Leu Val Pro Ala Cys Ile Val Val Leu  
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Ile Phe Leu Ala Phe Gln Gln Arg Ala Tyr Val Ala Pro Ala Asn Leu  
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Pro Ala Leu Leu Leu Leu Leu Leu Tyr Gly Trp Ser Ile Thr Pro  
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 Leu Met Tyr Pro Ala Ser Phe Phe Phe Ser Val Pro Ser Thr Ala Tyr  
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 Val Val Gly Lys Asn Leu Leu Ala Met Val Ile Gln Gly Pro Leu Phe  
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 Leu Leu Phe Thr Leu Leu Leu Gln His Arg Ser Gln Leu Leu Pro Gln  
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 Pro Arg Val Arg Ser Leu Pro Leu Leu Gly Glu Glu Asp Glu Asp Val  
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 Ala Val Asp Arg Leu Cys Leu Gly Ile Pro Pro Gly Glu Cys Phe Gly  
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 1825 1830 1835 1840  
 Thr Gly Asp Thr Leu Ala Ser Arg Gly Glu Ala Val Leu Ala Gly His  
 1845 1850 1855  
 Ser Val Ala Arg Glu Pro Ser Ala Ala His Leu Ser Met Gly Tyr Cys  
 1860 1865 1870  
 Pro Gln Ser Asp Ala Ile Phe Glu Leu Leu Thr Gly Arg Glu His Leu  
 1875 1880 1885  
 Glu Leu Leu Ala Arg Leu Arg Gly Val Pro Glu Ala Gln Val Ala Gln  
 1890 1895 1900  
 Thr Ala Gly Ser Gly Leu Ala Arg Leu Gly Leu Ser Trp Tyr Ala Asp  
 1905 1910 1915 1920

Arg Pro Ala Gly Thr Tyr Ser Gly Gly Asn Lys Arg Lys Leu Ala Thr  
1925 1930 1935

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1940 1945 1950

Thr Thr Gly Met Asp Pro Ser Ala Arg Arg Phe Leu Trp Asn Ser Leu  
1955 1960 1965

Leu Ala Val Val Arg Glu Gly Arg Ser Val Met Leu Thr Ser His Ser  
1970 1975 1980

Met Glu Glu Cys Glu Ala Leu Cys Ser Arg Leu Ala Ile Met Val Asn  
1985 1990 1995 2000

Gly Arg Phe Arg Cys Leu Gly Ser Pro Gln His Leu Lys Gly Arg Phe  
2005 2010 2015

Ala Ala Gly His Thr Leu Thr Leu Arg Val Pro Ala Ala Arg Ser Gln  
2020 2025 2030

Pro Ala Ala Ala Phe Val Ala Ala Glu Phe Pro Gly Ser Glu Leu Arg  
2035 2040 2045

Glu Ala His Gly Gly Arg Leu Arg Phe Gln Leu Pro Pro Gly Gly Arg  
2050 2055 2060

Cys Ala Leu Ala Arg Val Phe Gly Glu Leu Ala Val His Gly Ala Glu  
2065 2070 2075 2080

His Gly Val Glu Asp Phe Ser Val Ser Gln Thr Met Leu Glu Glu Val  
2085 2090 2095

Phe Leu Tyr Phe Ser Lys Asp Gln Gly Lys Asp Glu Asp Thr Glu Glu  
2100 2105 2110

Gln Lys Glu Ala Gly Val Gly Val Asp Pro Ala Pro Gly Leu Gln His  
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Thr	Leu	Gly	Arg	Val	Thr	Glu	Cys	Leu	Ser	Leu	Asp	Lys	Leu	Glu	Ala			
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Glu	His	Arg	Phe	Trp	Ala	Gly	Val	Val	Phe	Leu	Gly	Pro	Glu	Asp	Ser			
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Ser	Asp	Pro	Thr	Glu	His	Pro	Thr	Pro	Asp	Leu	Gly	Pro	Gly	His	Val			
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Arg	Ile	Lys	Ile	Arg	Met	Asp	Ile	Asp	Val	Val	Thr	Arg	Thr	Asn	Lys			
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Ile	Arg	Asp	Arg	Phe	Trp	Asp	Pro	Gly	Pro	Ala	Ala	Asp	Pro	Leu	Thr			
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Asp	Leu	Arg	Tyr	Val	Trp	Gly	Gly	Phe	Val	Tyr	Leu	Gln	Asp	Leu	Val			
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Glu	Arg	Ala	Ala	Val	Arg	Val	Leu	Ser	Gly	Ala	Asn	Pro	Arg	Ala	Gly			
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Leu	Tyr	Leu	Gln	Gln	Met	Pro	Tyr	Pro	Cys	Tyr	Val	Asp	Asp	Val	Phe			
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Leu	Arg	Val	Leu	Ser	Arg	Ser	Leu	Pro	Leu	Phe	Leu	Thr	Leu	Ala	Trp			
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Ile	Tyr	Ser	Val	Thr	Leu	Thr	Val	Lys	Ala	Val	Val	Arg	Glu	Lys	Glu			
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Thr	Arg	Leu	Arg	Asp	Thr	Met	Arg	Ala	Met	Gly	Leu	Ser	Arg	Ala	Val			
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Leu	Trp	Leu	Gly	Trp	Phe	Leu	Ser	Cys	Leu	Gly	Pro	Phe	Leu	Leu	Ser			
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Ala	Ala	Leu	Leu	Val	Leu	Val	Leu	Lys	Leu	Gly	Asp	Ile	Leu	Pro	Tyr			
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Ser	His	Pro	Gly	Val	Val	Phe	Leu	Phe	Leu	Ala	Ala	Phe	Ala	Val	Ala			
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Thr	Val	Thr	Gln	Ser	Phe	Leu	Leu	Ser	Ala	Phe	Phe	Ser	Arg	Ala	Asn			
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Leu	Ala	Ala	Ala	Cys	Gly	Gly	Leu	Ala	Tyr	Phe	Ser	Leu	Tyr	Leu	Pro			
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Tyr	Val	Leu	Cys	Val	Ala	Trp	Arg	Asp	Arg	Leu	Pro	Ala	Gly	Gly	Arg			
625					630					635					640			

Val	Ala	Ala	Ser	Leu	Leu	Ser	Pro	Val	Ala	Phe	Gly	Phe	Gly	Cys	Glu	645	650	655	
Ser	Leu	Ala	Leu	Leu	Glu	Glu	Gln	Gly	Glu	Gly	Ala	Gln	Trp	His	Asn	660	665	670	
Val	Gly	Thr	Arg	Pro	Thr	Ala	Asp	Val	Phe	Ser	Leu	Ala	Gln	Val	Ser	675	680	685	
Gly	Leu	Leu	Leu	Leu	Asp	Ala	Ala	Leu	Tyr	Gly	Leu	Ala	Thr	Trp	Tyr	690	695	700	
Leu	Glu	Ala	Val	Cys	Pro	Gly	Gln	Tyr	Gly	Ile	Pro	Glu	Pro	Trp	Asn	705	710	715	720
Phe	Pro	Phe	Arg	Arg	Ser	Tyr	Trp	Cys	Gly	Pro	Arg	Pro	Pro	Lys	Ser	725	730	735	
Pro	Ala	Pro	Cys	Pro	Thr	Pro	Leu	Asp	Pro	Lys	Val	Leu	Val	Glu	Glu	740	745	750	
Ala	Pro	Pro	Gly	Leu	Ser	Pro	Gly	Val	Ser	Val	Arg	Ser	Leu	Glu	Lys	755	760	765	
Arg	Phe	Pro	Gly	Ser	Pro	Gln	Pro	Ala	Leu	Arg	Gly	Leu	Ser	Leu	Asp	770	775	780	
Phe	Tyr	Gln	Gly	His	Ile	Thr	Ala	Phe	Leu	Gly	His	Asn	Gly	Ala	Gly	785	790	795	800
Lys	Thr	Thr	Thr	Leu	Ser	Ile	Leu	Ser	Gly	Leu	Phe	Pro	Pro	Ser	Gly	805	810	815	
Gly	Ser	Ala	Phe	Ile	Leu	Gly	His	Asp	Val	Arg	Ser	Ser	Met	Ala	Ala	820	825	830	
Ile	Arg	Pro	His	Leu	Gly	Val	Cys	Pro	Gln	Tyr	Asn	Val	Leu	Phe	Asp	835	840	845	
Met	Leu	Thr	Val	Asp	Glu	His	Val	Trp	Phe	Tyr	Gly	Arg	Leu	Lys	Gly	850	855	860	
Leu	Ser	Ala	Ala	Val	Val	Gly	Pro	Glu	Gln	Asp	Arg	Leu	Leu	Gln	Asp	865	870	875	880
Val	Gly	Leu	Val	Ser	Lys	Gln	Ser	Val	Gln	Thr	Arg	His	Leu	Ser	Gly	885	890	895	
Gly	Met	Gln	Arg	Lys	Leu	Ser	Val	Ala	Ile	Ala	Phe	Val	Gly	Gly	Ser	900	905	910	
Gln	Val	Val	Ile	Leu	Asp	Glu	Pro	Thr	Ala	Gly	Val	Asp	Pro	Ala	Ser	915	920	925	
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Arg Val Ala Val Val Ala Gly Gly Arg Leu Cys Cys Cys Gly Ser Pro  
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Leu Phe Leu Arg Arg His Leu Gly Ser Gly Tyr Tyr Leu Thr Leu Val  
980 985 990

Lys Ala Arg Leu Pro Leu Thr Thr Asn Glu Lys Ala Asp Thr Asp Met  
995 1000 1005

Glu Gly Ser Val Asp Thr Arg Gln Glu Lys Lys Asn Gly Ser Gln Gly  
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Ser Arg Val Gly Thr Pro Gln Leu Leu Ala Leu Val Gln His Trp Val  
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Pro Gly Ala Arg Leu Val Glu Glu Leu Pro His Glu Leu Val Leu Val  
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Leu Pro Tyr Thr Gly Ala His Asp Gly Ser Phe Ala Thr Leu Phe Arg  
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Glu Leu Asp Thr Arg Leu Ala Glu Leu Arg Leu Thr Gly Tyr Gly Ile  
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Ser Asp Thr Ser Leu Glu Glu Ile Phe Leu Lys Val Val Glu Glu Cys  
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Thr Gly Ile Ala Gly Leu Asp Val Thr Leu Arg Leu Lys Met Pro Pro  
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Gln Glu Thr Ala Leu Glu Asn Gly Glu Pro Ala Gly Ser Ala Pro Glu  
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Thr Asp Gln Gly Ser Gly Pro Asp Ala Val Gly Arg Val Gln Gly Trp  
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Ala Leu Thr Arg Gln Gln Leu Gln Ala Leu Leu Leu Lys Arg Phe Leu  
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Leu Ala Arg Arg Ser Arg Arg Gly Leu Phe Ala Gln Ile Val Leu Pro  
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Ala Leu Phe Val Gly Leu Ala Leu Val Phe Ser Leu Ile Val Pro Pro  
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Phe Gly His Tyr Pro Ala Leu Arg Leu Ser Pro Thr Met Tyr Gly Ala  
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Gln Val Ser Phe Phe Ser Glu Asp Ala Pro Gly Asp Pro Gly Arg Ala  
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Arg Leu Leu Glu Ala Leu Leu Gln Glu Ala Gly Leu Glu Glu Pro Pro  
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 Cys Pro Ala Ala Ala Gly Gly Pro Pro Pro Gln Ala Val Thr Gly  
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 Ser Gly Glu Val Val Gln Asn Leu Thr Gly Arg Asn Leu Ser Asp Phe  
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 Leu Val Lys Thr Tyr Pro Arg Leu Val Arg Gln Gly Leu Lys Thr Lys  
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 Lys Trp Val Asn Glu Val Arg Tyr Gly Gly Phe Ser Leu Gly Gly Arg  
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 Asp Pro Gly Leu Pro Ser Gly Gln Glu Leu Gly Arg Ser Val Glu Glu  
 1380 1385 1390  
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 Pro Ala Arg His Ala His Ser Ile Thr Thr Leu Asn His Pro Leu Asn  
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Val Leu Ile Phe Leu Ala Phe Gln Gln Arg Ala Tyr Val Ala Pro Ala  
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Asn Leu Pro Ala Leu Leu Leu Leu Leu Leu Tyr Gly Trp Ser Ile  
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Thr Pro Leu Met Tyr Pro Ala Ser Phe Phe Phe Ser Val Pro Ser Thr  
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Ala Tyr Val Val Leu Thr Cys Ile Asn Leu Phe Ile Gly Ile Asn Gly  
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Ser Met Ala Thr Phe Val Leu Glu Leu Phe Ser Asp Gln Lys Leu Gln  
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Glu Val Ser Arg Ile Leu Lys Gln Val Phe Leu Ile Phe Pro His Phe  
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Cys Leu Gly Arg Gly Leu Ile Asp Met Val Arg Asn Gln Ala Met Ala  
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Asp Ala Phe Glu Arg Leu Gly Asp Arg Gln Phe Gln Ser Pro Leu Arg  
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Trp Glu Val Val Gly Lys Asn Leu Leu Ala Met Val Ile Gln Gly Pro  
1685 1690 1695

Leu Phe Leu Leu Phe Thr Leu Leu Leu Gln His Arg Ser Gln Leu Leu  
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Pro Gln Pro Arg Val Arg Ser Leu Pro Leu Leu Gly Glu Glu Asp Glu  
1715 1720 1725

Asp Val Ala Arg Glu Arg Glu Arg Val Val Gln Gly Ala Thr Gln Gly  
1730 1735 1740

Asp Val Leu Val Leu Arg Asn Leu Thr Lys Val Tyr Arg Gly Gln Arg  
1745 1750 1755 1760

Met Pro Ala Val Asp Arg Leu Cys Leu Gly Ile Pro Pro Gly Glu Cys  
1765 1770 1775

Phe Gly Leu Leu Gly Val Asn Gly Ala Gly Lys Thr Ser Thr Phe Arg  
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Met Val Thr Gly Asp Thr Leu Ala Ser Arg Gly Glu Ala Val Leu Ala  
1795 1800 1805

Gly His Ser Val Ala Arg Glu Pro Ser Ala Ala His Leu Ser Met Gly  
1810 1815 1820

Tyr Cys Pro Gln Ser Asp Ala Ile Phe Glu Leu Leu Thr Gly Arg Glu  
1825 1830 1835 1840

His Leu Glu Leu Leu Ala Arg Leu Arg Gly Val Pro Glu Ala Gln Val  
1845 1850 1855



Ala Gln Thr Ala Gly Ser Gly Leu Ala Arg Leu Gly Leu Ser Trp Tyr  
 1860 1865 1870

Ala Asp Arg Pro Ala Gly Thr Tyr Ser Gly Gly Asn Lys Arg Lys Leu  
 1875 1880 1885

Ala Thr Ala Leu Ala Leu Val Gly Asp Pro Ala Val Val Phe Leu Asp  
 1890 1895 1900

Glu Pro Thr Thr Gly Met Asp Pro Ser Ala Arg Arg Phe Leu Trp Asn  
 1905 1910 1915 1920

Ser Leu Leu Ala Val Val Arg Glu Gly Arg Ser Val Met Leu Thr Ser  
 1925 1930 1935

His Ser Met Glu Glu Cys Glu Ala Leu Cys Ser Arg Leu Ala Ile Met  
 1940 1945 1950

Val Asn Gly Arg Phe Arg Cys Leu Gly Ser Pro Gln His Leu Lys Gly  
 1955 1960 1965

Arg Phe Ala Ala Gly His Thr Leu Thr Leu Arg Val Pro Ala Ala Arg  
 1970 1975 1980

Ser Gln Pro Ala Ala Ala Phe Val Ala Ala Glu Phe Pro Gly Ser Glu  
 1985 1990 1995 2000

Leu Arg Glu Ala His Gly Gly Arg Leu Arg Phe Gln Leu Pro Pro Gly  
 2005 2010 2015

Gly Arg Cys Ala Leu Ala Arg Val Phe Gly Glu Leu Ala Val His Gly  
 2020 2025 2030

Ala Glu His Gly Val Glu Asp Phe Ser Val Ser Gln Thr Met Leu Glu  
 2035 2040 2045

Glu Val Phe Leu Tyr Phe Ser Lys Asp Gln Gly Lys Asp Glu Asp Thr  
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Glu Glu Gln Lys Glu Ala Gly Val Gly Val Asp Pro Ala Pro Gly Leu  
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Gln Asn His Cys Pro Pro Cys Gly Leu Ser Pro Gln Glu Ser Leu Gly	
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Gly Pro Ser Leu Asn Trp Tyr Glu Ala Ser Asp Leu Met Glu Leu Val	
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Gly Gln Glu Pro Glu Ser Ala Leu Pro Asp Ser Ser Leu Ser Pro Ala	
115 120 125	
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Cys Ser Glu Leu Ile Gly Ala Leu Asp Ser His Pro Leu Ser Arg Leu	
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Pro Asp Thr Pro Phe Thr Arg Lys Leu Met Ala Gln Val Asn Arg Thr	
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Phe Glu Glu Leu Thr Leu Leu Arg Asp Val Arg Glu Val Trp Glu Met	
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ctg gga ccc cgg atc ttc acc ttc atg aac gac agt tcc aat gtg gcc	624
Leu Gly Pro Arg Ile Phe Thr Phe Met Asn Asp Ser Ser Asn Val Ala	
195 200 205	
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Met Leu Gln Arg Leu Leu Gln Met Gln Asp Glu Gly Arg Arg Gln Pro	

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Pro Gly Ser Gly Gly Tyr Ser Trp Gln Asp Ala His Ala Asp Val Gly			
	245	250	255
cac ctg gtg ggc acg ctg ggc cga gtg acg gag tgc ctg tcc ttg gac			816
His Leu Val Gly Thr Leu Gly Arg Val Thr Glu Cys Leu Ser Leu Asp			
	260	265	270
aag ctg gag gcg gca ccc tca gag gca gcc ctg gtg tcg cgg gcc ctg			864
Lys Leu Glu Ala Ala Pro Ser Glu Ala Ala Leu Val Ser Arg Ala Leu			
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Gln Leu Leu Ala Glu His Arg Phe Trp Ala Gly Val Val Phe Leu Gly			
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Pro Glu Asp Ser Ser Asp Pro Thr Glu His Pro Thr Pro Asp Leu Gly			
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Pro Gly His Val Arg Ile Lys Ile Arg Met Asp Ile Asp Val Val Thr			
	325	330	335
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Arg Thr Asn Lys Ile Arg Asp Arg Phe Trp Asp Pro Gly Pro Ala Ala			
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Gln Asp Leu Val Glu Arg Ala Ala Val Arg Val Leu Ser Gly Ala Asn			
	370	375	380
ccc cgg gcc ggc ctc tac ctg cag cag atg ccc tat ccg tgc tat gtg			1200
Pro Arg Ala Gly Leu Tyr Leu Gln Gln Met Pro Tyr Pro Cys Tyr Val			
385	390	395	400
gac gac gtg ttc ctg cgt gtg ctg agc cgg tcg ctg ccg ctc ttc ctg			1248
Asp Asp Val Phe Leu Arg Val Leu Ser Arg Ser Leu Pro Leu Phe Leu			
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Arg Glu Lys Glu Thr Arg Leu Arg Asp Thr Met Arg Ala Met Gly Leu			
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Ile Leu Pro Tyr Ser His Pro Gly Val Val Phe Leu Phe Leu Ala Ala	
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Phe Ala Val Ala Thr Val Thr Gln Ser Phe Leu Leu Ser Ala Phe Phe	
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Ser Arg Ala Asn Leu Ala Ala Ala Cys Gly Gly Leu Ala Tyr Phe Ser	
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ctc tac ctg ccc tac gtg ctg tgt gtg gct tgg cgg gac cgg ctg ccc	1632
Leu Tyr Leu Pro Tyr Val Leu Cys Val Ala Trp Arg Asp Arg Leu Pro	
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Ala Gly Gly Arg Val Ala Ala Ser Leu Leu Ser Pro Val Ala Phe Gly	
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Phe Gly Cys Glu Ser Leu Ala Leu Leu Glu Glu Gln Gly Glu Gly Ala	
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cag tgg cac aac gtg ggc acc cgg cct acg gca gac gtc ttc agc ctg	1776
Gln Trp His Asn Val Gly Thr Arg Pro Thr Ala Asp Val Phe Ser Leu	
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gcc cag gtc tct ggc ctt ctg ctg ctg gac gcg gcg ctc tac ggc ctc	1824
Ala Gln Val Ser Gly Leu Leu Leu Leu Asp Ala Ala Leu Tyr Gly Leu	
595 600 605	
gcc acc tgg tac ctg gaa gct gtg tgc cca ggc cag tac ggg atc cct	1872
Ala Thr Trp Tyr Leu Glu Ala Val Cys Pro Gly Gln Tyr Gly Ile Pro	
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Glu Pro Trp Asn Phe Pro Phe Arg Arg Ser Tyr Trp Cys Gly Pro Arg	
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ccc ccc aag agt cca gcc cct tgc ccc acc ccg ctg gac cca aag gtg	1968
Pro Pro Lys Ser Pro Ala Pro Cys Pro Thr Pro Leu Asp Pro Lys Val	
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Leu Val Glu Glu Ala Pro Pro Gly Leu Ser Pro Gly Val Ser Val Arg	
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Ser Leu Glu Lys Arg Phe Pro Gly Ser Pro Gln Pro Ala Leu Arg Gly	
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Leu Ser Leu Asp Phe Tyr Gln Gly His Ile Thr Ala Phe Leu Gly His	
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Asn Gly Ala Gly Lys Thr Thr Thr Leu Ser Ile Leu Ser Gly Leu Phe	
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cca ccc agt ggt ggc tct gcc ttc atc ctg ggc cac gac gtc cgc tcc	2208
Pro Pro Ser Gly Gly Ser Ala Phe Ile Leu Gly His Asp Val Arg Ser	
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agc atg gcc gcc atc cgg ccc cac ctg ggc gtc tgt cct cag tac aac	2256
Ser Met Ala Ala Ile Arg Pro His Leu Gly Val Cys Pro Gln Tyr Asn	
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Val Leu Phe Asp Met Leu Thr Val Asp Glu His Val Trp Phe Tyr Gly	
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Arg Leu Lys Gly Leu Ser Ala Ala Val Val Gly Pro Glu Gln Asp Arg	
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Leu Leu Gln Asp Val Gly Leu Val Ser Lys Gln Ser Val Gln Thr Arg	
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His Leu Ser Gly Gly Met Gln Arg Lys Leu Ser Val Ala Ile Ala Phe	
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Val Gly Gly Ser Gln Val Val Ile Leu Asp Glu Pro Thr Ala Gly Val	
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gat cct gct tcc cgc cgc ggt att tgg gag ctg ctg ctc aaa tac cga	2544
Asp Pro Ala Ser Arg Arg Gly Ile Trp Glu Leu Leu Leu Lys Tyr Arg	
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Glu Gly Arg Thr Leu Ile Leu Ser Thr His His Leu Asp Glu Ala Glu	
850 855 860	
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Leu Leu Gly Asp Arg Val Ala Val Val Ala Gly Gly Arg Leu Cys Cys	
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Cys Gly Ser Pro Leu Phe Leu Arg Arg His Leu Gly Ser Gly Tyr Tyr	
885 890 895	
ctg acg ctg gtg aag gcc cgc ctg ccc ctg acc acc aat gag aag gct	2736

Leu Thr Leu Val Lys Ala Arg Leu Pro Leu Thr Thr Asn Glu Lys Ala	
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gac act gac atg gag ggc agt gtg gac acc agg cag gaa aag aag aat	2784
Asp Thr Asp Met Glu Gly Ser Val Asp Thr Arg Gln Glu Lys Lys Asn	
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Gly Ser Gln Gly Ser Arg Val Gly Thr Pro Gln Leu Leu Ala Leu Val	
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Gln His Trp Val Pro Gly Ala Arg Leu Val Glu Glu Leu Pro His Glu	
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Leu Val Leu Val Leu Pro Tyr Thr Gly Ala His Asp Gly Ser Phe Ala	
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Thr Leu Phe Arg Glu Leu Asp Thr Arg Leu Ala Glu Leu Arg Leu Thr	
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Gly Tyr Gly Ile Ser Asp Thr Ser Leu Glu Glu Ile Phe Leu Lys Val	
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Val Glu Glu Cys Ala Ala Asp Thr Asp Met Glu Asp Gly Ser Cys Gly	
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Gln His Leu Cys Thr Gly Ile Ala Gly Leu Asp Val Thr Leu Arg Leu	
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Lys Met Pro Pro Gln Glu Thr Ala Leu Glu Asn Gly Glu Pro Ala Gly	
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Ser Ala Pro Glu Thr Asp Gln Gly Ser Gly Pro Asp Ala Val Gly Arg	
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Val Gln Gly Trp Ala Leu Thr Arg Gln Gln Leu Gln Ala Leu Leu Leu	
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Lys Arg Phe Leu Leu Ala Arg Arg Ser Arg Arg Gly Leu Phe Ala Gln	
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Ile Val Leu Pro Ala Leu Phe Val Gly Leu Ala Leu Val Phe Ser Leu	
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atc gtg cct cct ttc ggg cac tac ccg gct ctg cgg ctc agt ccc acc	3408
Ile Val Pro Pro Phe Gly His Tyr Pro Ala Leu Arg Leu Ser Pro Thr	

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Met Tyr Gly Ala Gln Val Ser Phe Phe Ser Glu Asp Ala Pro Gly Asp			
1140	1145	1150	
cct gga cgt gcc cgg ctg ctc gag gcg ctg ctg cag gag gca gga ctg			3504
Pro Gly Arg Ala Arg Leu Leu Glu Ala Leu Leu Gln Glu Ala Gly Leu			
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gag gag ccc cca gtg cag cat agc tcc cac agg ttc tcg gca cca gaa			3552
Glu Glu Pro Pro Val Gln His Ser Ser His Arg Phe Ser Ala Pro Glu			
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Val Pro Ala Glu Val Ala Lys Val Leu Ala Ser Gly Asn Trp Thr Pro			
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Glu Ser Pro Ser Pro Ala Cys Gln Cys Ser Gln Pro Gly Ala Arg Arg			
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ctg ctg ccc gac tgc ccg gct gca gct ggt ggt ccc cct ccg ccc cag			3696
Leu Leu Pro Asp Cys Pro Ala Ala Ala Gly Gly Pro Pro Pro Gln			
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Ala Val Thr Gly Ser Gly Glu Val Gln Asn Leu Thr Gly Arg Asn			
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Leu Ser Asp Phe Leu Val Lys Thr Tyr Pro Arg Leu Val Arg Gln Gly			
1250	1255	1260	
ctg aag act aag aag tgg gtg aat gag gtc agg tac gga ggc ttc tcg			3840
Leu Lys Thr Lys Lys Trp Val Asn Glu Val Arg Tyr Gly Gly Phe Ser			
1265	1270	1275	1280
ctg ggg ggc cga gac cca ggc ctg ccc tcg ggc caa gag ttg ggc cgc			3888
Leu Gly Gly Arg Asp Pro Gly Leu Pro Ser Gly Gln Glu Leu Gly Arg			
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Ser Val Glu Glu Leu Trp Ala Leu Leu Ser Pro Leu Pro Gly Gly Ala			
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Leu Asp Arg Val Leu Lys Asn Leu Thr Ala Trp Ala His Ser Leu Asp			
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Ala Gln Asp Ser Leu Lys Ile Trp Phe Asn Asn Lys Gly Trp His Ser			
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Met Val Ala Phe Val Asn Arg Ala Ser Asn Ala Ile Leu Arg Ala His			
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 Leu Pro Pro Gly Pro Ala Arg His Ala His Ser Ile Thr Thr Leu Asn  
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 cac ccc ttg aac ctc acc aag gag cag ctg tct gag gct gca ctg atg 4176  
 His Pro Leu Asn Leu Thr Lys Glu Gln Leu Ser Glu Ala Ala Leu Met  
 1380 1385 1390  
  
 gcc tcc tcg gtg gac gtc ctc gtc tcc atc tgt gtg gtc ttt gcc atg 4224  
 Ala Ser Ser Val Asp Val Leu Val Ser Ile Cys Val Val Phe Ala Met  
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 Ser Phe Val Pro Ala Ser Phe Thr Leu Val Leu Ile Glu Glu Arg Val  
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 acc cga gcc aag cac ctg cag ctc atg ggg ggc ctg tcc ccc acc ctc 4320  
 Thr Arg Ala Lys His Leu Gln Leu Met Gly Gly Leu Ser Pro Thr Leu  
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 Tyr Trp Leu Gly Asn Phe Leu Trp Asp Met Cys Asn Tyr Leu Val Pro  
 1445 1450 1455  
  
 gca tgc atc gtg gtg ctc atc ttt ctg gcc ttc cag cag agg gca tat 4416  
 Ala Cys Ile Val Val Leu Ile Phe Leu Ala Phe Gln Gln Arg Ala Tyr  
 1460 1465 1470  
  
 gtg gcc cct gcc aac ctg cct gct ctc ctg ctg ttg cta cta ctg tat 4464  
 Val Ala Pro Ala Asn Leu Pro Ala Leu Leu Leu Leu Leu Leu Tyr  
 1475 1480 1485  
  
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 Gly Arg Gln Ala Val Pro Val Thr Pro Ala Leu Gly Gly Gly Arg Gln  
 1490 1495 1500  
  
 gaa cct ctt ggc cat ggt gat aca ggg gcc cct ctt cct tct ctt cac 4560  
 Glu Pro Leu Gly His Gly Asp Thr Gly Ala Pro Leu Pro Ser Leu His  
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 act act gct gca gca ccg aag cca act cct gcc aca gcc cag ggt gag 4608  
 Thr Thr Ala Ala Ala Pro Lys Pro Thr Pro Ala Thr Ala Gln Gly Glu  
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<212> PRT

<213> Homo sapiens

<400> 8

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Ala Gly Asp Leu Ala Gln Glu Leu Leu Ala Leu Arg Ser Leu Val Glu	50	55	60
Leu Arg Ala Leu Leu Gln Arg Pro Arg Gly Thr Ser Gly Pro Leu Glu	65	70	75
Leu Leu Ser Glu Ala Leu Cys Ser Val Arg Gly Pro Ser Ser Thr Val	85	90	95
Gly Pro Ser Leu Asn Trp Tyr Glu Ala Ser Asp Leu Met Glu Leu Val	100	105	110
Gly Gln Glu Pro Glu Ser Ala Leu Pro Asp Ser Ser Leu Ser Pro Ala	115	120	125
Cys Ser Glu Leu Ile Gly Ala Leu Asp Ser His Pro Leu Ser Arg Leu	130	135	140
Leu Trp Arg Arg Leu Lys Pro Leu Ile Leu Gly Lys Leu Leu Phe Ala	145	150	155
Pro Asp Thr Pro Phe Thr Arg Lys Leu Met Ala Gln Val Asn Arg Thr	165	170	175
Phe Glu Glu Leu Thr Leu Leu Arg Asp Val Arg Glu Val Trp Glu Met	180	185	190
Leu Gly Pro Arg Ile Phe Thr Phe Met Asn Asp Ser Ser Asn Val Ala	195	200	205
Met Leu Gln Arg Leu Leu Gln Met Gln Asp Glu Gly Arg Arg Gln Pro	210	215	220
Arg Pro Gly Gly Arg Asp His Met Glu Ala Leu Arg Ser Phe Leu Asp	225	230	235
Pro Gly Ser Gly Gly Tyr Ser Trp Gln Asp Ala His Ala Asp Val Gly	245	250	255
His Leu Val Gly Thr Leu Gly Arg Val Thr Glu Cys Leu Ser Leu Asp	260	265	270
Lys Leu Glu Ala Ala Pro Ser Glu Ala Ala Leu Val Ser Arg Ala Leu	275	280	285
Gln Leu Leu Ala Glu His Arg Phe Trp Ala Gly Val Val Phe Leu Gly	290	295	300
Pro Glu Asp Ser Ser Asp Pro Thr Glu His Pro Thr Pro Asp Leu Gly			

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Pro Gly His Val Arg Ile Lys Ile Arg Met Asp Ile Asp Val Val Thr						
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Arg Thr Asn Lys Ile Arg Asp Arg Phe Trp Asp Pro Gly Pro Ala Ala						
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Asp Pro Leu Thr Asp Leu Arg Tyr Val Trp Gly Gly Phe Val Tyr Leu						
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Gln Asp Leu Val Glu Arg Ala Ala Val Arg Val Leu Ser Gly Ala Asn						
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Pro Arg Ala Gly Leu Tyr Leu Gln Gln Met Pro Tyr Pro Cys Tyr Val						
	385			390		400
Asp Asp Val Phe Leu Arg Val Leu Ser Arg Ser Leu Pro Leu Phe Leu						
	405			410		415
Thr Leu Ala Trp Ile Tyr Ser Val Thr Leu Thr Val Lys Ala Val Val						
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Arg Glu Lys Glu Thr Arg Leu Arg Asp Thr Met Arg Ala Met Gly Leu						
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Ser Arg Ala Val Leu Trp Leu Gly Trp Phe Leu Ser Cys Leu Gly Pro						
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Phe Leu Leu Ser Ala Ala Leu Leu Val Leu Val Leu Lys Leu Gly Asp						
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Ile Leu Pro Tyr Ser His Pro Gly Val Val Phe Leu Phe Leu Ala Ala						
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Phe Ala Val Ala Thr Val Thr Gln Ser Phe Leu Leu Ser Ala Phe Phe						
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Ser Arg Ala Asn Leu Ala Ala Ala Cys Gly Gly Leu Ala Tyr Phe Ser						
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Leu Tyr Leu Pro Tyr Val Leu Cys Val Ala Trp Arg Asp Arg Leu Pro						
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Ala Gly Gly Arg Val Ala Ala Ser Leu Leu Ser Pro Val Ala Phe Gly						
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Phe Gly Cys Glu Ser Leu Ala Leu Leu Glu Glu Gln Gly Glu Gly Ala						
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Gln Trp His Asn Val Gly Thr Arg Pro Thr Ala Asp Val Phe Ser Leu						
	580			585		590
Ala Gln Val Ser Gly Leu Leu Leu Leu Asp Ala Ala Leu Tyr Gly Leu						
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Ala Thr Trp Tyr Leu Glu Ala Val Cys Pro Gly Gln Tyr Gly Ile Pro						



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Gln	His	Trp	Val	Pro	Gly	Ala	Arg	Leu	Val	Glu	Glu	Leu	Pro	His	Glu
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Leu	Val	Leu	Val	Leu	Pro	Tyr	Thr	Gly	Ala	His	Asp	Gly	Ser	Phe	Ala
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Thr	Leu	Phe	Arg	Glu	Leu	Asp	Thr	Arg	Leu	Ala	Glu	Leu	Arg	Leu	Thr
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Gly	Tyr	Gly	Ile	Ser	Asp	Thr	Ser	Leu	Glu	Glu	Ile	Phe	Leu	Lys	Val
					995					1000					1005
Val	Glu	Glu	Cys	Ala	Ala	Asp	Thr	Asp	Met	Glu	Asp	Gly	Ser	Cys	Gly
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Gln	His	Leu	Cys	Thr	Gly	Ile	Ala	Gly	Leu	Asp	Val	Thr	Leu	Arg	Leu
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Lys	Met	Pro	Pro	Gln	Glu	Thr	Ala	Leu	Glu	Asn	Gly	Glu	Pro	Ala	Gly
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Ser	Ala	Pro	Glu	Thr	Asp	Gln	Gly	Ser	Gly	Pro	Asp	Ala	Val	Gly	Arg
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Ile	Val	Leu	Pro	Ala	Leu	Phe	Val	Gly	Leu	Ala	Leu	Val	Phe	Ser	Leu
1105					1110					1115					1120
Ile	Val	Pro	Pro	Phe	Gly	His	Tyr	Pro	Ala	Leu	Arg	Leu	Ser	Pro	Thr
					1125					1130					1135
Met	Tyr	Gly	Ala	Gln	Val	Ser	Phe	Phe	Ser	Glu	Asp	Ala	Pro	Gly	Asp
1140					1145					1150					
Pro	Gly	Arg	Ala	Arg	Leu	Leu	Glu	Ala	Leu	Leu	Gln	Glu	Ala	Gly	Leu
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Ala Val Thr Gly Ser Gly Glu Val Val Gln Asn Leu Thr Gly Arg Asn		
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Leu Lys Thr Lys Lys Trp Val Asn Glu Val Arg Tyr Gly Gly Phe Ser		
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Leu Gly Gly Arg Asp Pro Gly Leu Pro Ser Gly Gln Glu Leu Gly Arg		
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Leu Asp Arg Val Leu Lys Asn Leu Thr Ala Trp Ala His Ser Leu Asp		
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Ala Gln Asp Ser Leu Lys Ile Trp Phe Asn Asn Lys Gly Trp His Ser		
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Leu Pro Pro Gly Pro Ala Arg His Ala His Ser Ile Thr Thr Leu Asn		
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His Pro Leu Asn Leu Thr Lys Glu Gln Leu Ser Glu Ala Ala Leu Met		
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Ala Ser Ser Val Asp Val Leu Val Ser Ile Cys Val Val Phe Ala Met		
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Ser Phe Val Pro Ala Ser Phe Thr Leu Val Leu Ile Glu Glu Arg Val		
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1425	1430	1435 1440
Tyr Trp Leu Gly Asn Phe Leu Trp Asp Met Cys Asn Tyr Leu Val Pro		
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Ala Cys Ile Val Val Leu Ile Phe Leu Ala Phe Gln Gln Arg Ala Tyr		
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Val Ala Pro Ala Asn Leu Pro Ala Leu Leu Leu Leu Leu Leu Tyr		
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Gly Arg Gln Ala Val Pro Val Thr Pro Ala Leu Gly Gly Gly Arg Gln		
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Glu Pro Leu Gly His Gly Asp Thr Gly Ala Pro Leu Pro Ser Leu His		
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Val Val Gly Asn Phe Asn Lys Ser Ile Val Ser Arg Leu Phe Ser Asp	
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Ala Gln Arg Leu Leu Leu Tyr Ser Gln Arg Asp Thr Ser Ile Lys Asp	
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Met His Lys Val Leu Arg Met Leu Arg Gln Ile Lys His Pro Asn Ser	
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Asn Leu Lys Leu Gln Asp Phe Leu Val Asp Asn Glu Thr Phe Ser Gly	
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Phe Leu Gln His Asn Leu Ser Leu Pro Arg Ser Thr Val Asp Ser Leu	
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Leu Gln Xaa Asn Val Gly Leu Gln Lys Val Phe Leu Gln Gly Tyr Gln	
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Leu His Leu Ala Ser Leu Cys Asn Gly Ser Lys Leu Glu Glu Ile Ile	
130 135 140	

Gln Leu Gly Asp Ala Glu Val Ser Ala Leu Cys Gly Leu Pro Arg Lys	
145 150 155 160	

Lys Leu Asp Ala Ala Glu Arg Val Leu Arg Tyr Asn Met Asp Ile Leu	
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Lys Pro Val Val Thr Lys Leu Asn Ser Thr Ser His Leu Pro Thr Gln	
180 185 190	

His Leu Ala Glu Ala Thr Thr Val Leu Leu Asp Ser Leu Gly Gly Leu	
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Ala Gln Glu Leu Phe Ser Thr Lys Ser Trp Ser Asp Met Arg Gln Glu	
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Gln	Met	Pro	Tyr	Pro	Cys	Tyr	Val	Asp	Asp	Ile	Phe	Leu	Arg	Val	Met	
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Ser	Arg	Ser	Met	Pro	Leu	Phe	Met	Thr	Leu	Ala	Trp	Ile	Tyr	Ser	Val	
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Ala	Val	Ile	Ile	Lys	Ser	Ile	Val	Tyr	Glu	Lys	Glu	Ala	Arg	Leu	Lys	
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Glu	Thr	Met	Arg	Ile	Met	Gly	Leu	Asp	Asn	Gly	Ile	Leu	Trp	Phe	Ser	
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Trp	Phe	Val	Ser	Ser	Leu	Ile	Pro	Leu	Leu	Val	Ser	Ala	Gly	Leu	Leu	
					625					630					635	
Val	Val	Ile	Leu	Lys	Leu	Gly	Asn	Leu	Leu	Pro	Tyr	Ser	Asp	Pro	Ser	
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Val	Val	Phe	Val	Phe	Leu	Ser	Val	Phe	Ala	Met	Val	Thr	Ile	Leu	Gln	
					660					665					670	
Cys	Phe	Leu	Ile	Ser	Thr	Leu	Phe	Ser	Arg	Ala	Asn	Leu	Ala	Ala	Ala	
					675					680					685	
Cys	Gly	Gly	Ile	Ile	Tyr	Phe	Thr	Leu	Tyr	Leu	Pro	Tyr	Val	Leu	Cys	
					690					695					700	
Val	Ala	Trp	Gln	Asp	Tyr	Val	Gly	Phe	Ser	Ile	Lys	Ile	Phe	Ala	Ser	
					705					710					715	
Leu	Leu	Ser	Pro	Val	Ala	Phe	Gly	Phe	Gly	Cys	Glu	Tyr	Phe	Ala	Leu	
					725					730					735	
Phe	Glu	Glu	Gln	Gly	Ile	Gly	Val	Gln	Trp	Asp	Asn	Leu	Phe	Glu	Ser	
					740					745					750	
Pro	Val	Glu	Glu	Asp	Gly	Phe	Asn	Leu	Thr	Thr	Ala	Val	Ser	Met	Met	
					755					760					765	
Leu	Phe	Asp	Thr	Phe	Leu	Tyr	Gly	Val	Met	Thr	Trp	Tyr	Ile	Glu	Ala	
					770					775					780	
Val	Phe	Pro	Gly	Gln	Tyr	Gly	Ile	Pro	Arg	Pro	Trp	Tyr	Phe	Pro	Cys	
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Thr	Lys	Ser	Tyr	Trp	Phe	Gly	Glu	Glu	Ile	Asp	Glu	Lys	Ser	His	Pro	
					805					810					815	
Gly	Ser	Ser	Gln	Lys	Gly	Val	Ser	Glu	Ile	Cys	Met	Glu	Glu	Glu	Pro	



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Thr	His	Leu	Arg	Leu	Gly	Val	Ser	Ile	Gln	Asn	Leu	Val	Lys	Val	Tyr															
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Arg	Asp	Gly	Met	Lys	Val	Ala	Val	Asp	Gly	Leu	Ala	Leu	Asn	Phe	Tyr															
		850					855					860																		
Glu	Gly	Gln	Ile	Thr	Ser	Phe	Leu	Gly	His	Asn	Gly	Ala	Gly	Lys	Thr															
		865				870				875					880															
Thr	Thr	Met	Ser	Ile	Leu	Thr	Gly	Leu	Phe	Pro	Pro	Thr	Ser	Gly	Thr															
				885					890					895																
Ala	Tyr	Ile	Leu	Gly	Lys	Asp	Ile	Arg	Ser	Glu	Met	Ser	Ser	Ile	Arg															
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Gln	Asn	Leu	Gly	Val	Cys	Pro	Gln	His	Asn	Val	Leu	Phe	Asp	Met	Leu															
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Thr	Val	Glu	Glu	His	Ile	Trp	Phe	Tyr	Ala	Arg	Leu	Lys	Gly	Leu	Ser															
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Glu	Lys	His	Val	Lys	Ala	Glu	Met	Glu	Gln	Met	Ala	Leu	Asp	Val	Gly															
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Leu	Pro	Pro	Ser	Lys	Leu	Lys	Ser	Lys	Thr	Ser	Gln	Leu	Ser	Gly	Gly															
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Met	Gln	Arg	Lys	Leu	Ser	Val	Ala	Leu	Ala	Phe	Val	Gly	Gly	Ser	Lys															
			980					985				990																		
Val	Val	Ile	Leu	Asp	Glu	Pro	Thr	Ala	Gly	Val	Asp	Pro	Tyr	Ser	Arg															
		995				1000					1005																			
Arg	Gly	Ile	Trp	Glu	Leu	Leu	Leu	Lys	Tyr	Arg	Gln	Gly	Arg	Thr	Ile															
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Ile	Leu	Ser	Thr	His	His	Met	Asp	Glu	Ala	Asp	Ile	Leu	Gly	Asp	Arg															
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Ile	Ala	Ile	Ile	Ser	His	Gly	Lys	Leu	Cys	Cys	Val	Gly	Ser	Ser	Leu															
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Phe	Leu	Lys	Asn	Gln	Leu	Gly	Thr	Gly	Tyr	Tyr	Leu	Thr	Leu	Val	Lys															
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Ser	Ala	Ile	Ser	Asn	Leu	Ile	Arg	Lys	His	Val	Ser	Glu	Ala	Arg	Leu															

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Val Glu Asp Ile Gly His Glu Leu Thr Tyr Val Leu Pro Tyr Glu Ala		
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Ala Lys Glu Gly Ala Phe Val Glu Leu Phe His Glu Ile Asp Asp Arg		
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Leu Ser Asp Leu Gly Ile Ser Ser Tyr Gly Ile Ser Glu Thr Thr Leu		
1170	1175	1180
Glu Glu Ile Phe Leu Lys Val Ala Glu Glu Ser Gly Val Asp Ala Glu		
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Thr Ser Asp Gly Thr Leu Pro Ala Arg Arg Asn Arg Arg Ala Phe Gly		
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Asp Lys Gln Ser Cys Leu His Pro Phe Thr Glu Asp Asp Ala Val Asp		
1220	1225	1230
Pro Asn Asp Ser Asp Ile Asp Pro Glu Ser Arg Glu Thr Asp Leu Leu		
1235	1240	1245
Ser Gly Met Asp Gly Lys Gly Ser Tyr Gln Leu Lys Gly Trp Lys Leu		
1250	1255	1260
Thr Gln Gln Gln Phe Val Ala Leu Leu Trp Lys Arg Leu Leu Ile Ala		
1265	1270	1275
Arg Arg Ser Arg Lys Gly Phe Phe Ala Gln Ile Val Leu Pro Ala Val		
1285	1290	1295
Phe Val Cys Ile Ala Leu Val Phe Ser Leu Ile Val Pro Pro Phe Gly		
1300	1305	1310
Lys Tyr Pro Ser Leu Glu Leu Gln Pro Trp Met Tyr Asn Glu Gln Tyr		
1315	1320	1325
Thr Phe Val Ser Asn Asp Ala Pro Glu Asp Met Gly Thr Gln Glu Leu		
1330	1335	1340
Leu Asn Ala Leu Thr Lys Asp Pro Gly Phe Gly Thr Arg Cys Met Glu		
1345	1350	1355
Gly Asn Pro Ile Pro Asp Thr Pro Cys Leu Ala Gly Glu Glu Asp Trp		
1365	1370	1375
Thr Ile Ser Pro Val Pro Gln Ser Ile Val Asp Leu Phe Gln Asn Gly		
1380	1385	1390
Asn Trp Thr Met Lys Asn Pro Ser Pro Ala Cys Gln Cys Ser Ser Asp		
1395	1400	1405
Lys Ile Lys Lys Met Leu Pro Val Cys Pro Pro Gly Ala Gly Gly Leu		
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Pro Pro Pro Gln Arg Lys Gln Lys Thr Ala Asp Ile Leu Gln Asn Leu		

1425	1430	1435	1440
Thr Gly Arg Asn Ile Ser Asp Tyr Leu Val Lys Thr Tyr Val Gln Ile			
1445	1450	1455	
Ile Ala Lys Ser Leu Lys Asn Lys Ile Trp Val Asn Glu Phe Arg Tyr			
1460	1465	1470	
Gly Gly Phe Ser Leu Gly Val Ser Asn Ser Gln Ala Leu Pro Pro Ser			
1475	1480	1485	
His Glu Val Asn Asp Ala Ile Lys Gln Met Lys Lys Leu Leu Lys Leu			
1490	1495	1500	
Thr Lys Asp Thr Ser Ala Asp Arg Phe Leu Ser Ser Leu Gly Arg Phe			
1505	1510	1515	1520
Met Ala Gly Leu Asp Thr Lys Asn Asn Val Lys Val Trp Phe Asn Asn			
1525	1530	1535	
Lys Gly Trp His Ala Ile Ser Ser Phe Leu Asn Val Ile Asn Asn Ala			
1540	1545	1550	
Ile Leu Arg Ala Asn Leu Gln Lys Gly Glu Asn Pro Ser Gln Tyr Gly			
1555	1560	1565	
Ile Thr Ala Phe Asn His Pro Leu Asn Leu Thr Lys Gln Gln Leu Ser			
1570	1575	1580	
Glu Val Ala Leu Met Thr Thr Ser Val Asp Val Leu Val Ser Ile Cys			
1585	1590	1595	1600
Val Ile Phe Ala Met Ser Phe Val Pro Ala Ser Phe Val Val Phe Leu			
1605	1610	1615	
Ile Gln Glu Arg Val Ser Lys Ala Lys His Leu Gln Phe Ile Ser Gly			
1620	1625	1630	
Val Lys Pro Val Ile Tyr Trp Leu Ser Asn Phe Val Trp Asp Met Cys			
1635	1640	1645	
Asn Tyr Val Val Pro Ala Thr Leu Val Ile Ile Ile Phe Ile Cys Phe			
1650	1655	1660	
Gln Gln Lys Ser Tyr Val Ser Ser Thr Asn Leu Pro Val Leu Ala Leu			
1665	1670	1675	1680
Leu Leu Leu Leu Tyr Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala			
1685	1690	1695	
Ser Phe Val Phe Lys Ile Pro Ser Thr Ala Tyr Val Val Leu Thr Ser			
1700	1705	1710	
Val Asn Leu Phe Ile Gly Ile Asn Gly Ser Val Ala Thr Phe Val Leu			
1715	1720	1725	
Glu Leu Phe Thr Asn Asn Lys Leu Asn Asp Ile Asn Asp Ile Leu Lys			

1730	1735	1740
Ser Val Phe Leu Ile Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile		
1745	1750	1755 1760
Asp Met Val Lys Asn Gln Ala Met Ala Asp Ala Leu Glu Arg Phe Gly		
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Glu Asn Arg Phe Val Ser Pro Leu Ser Trp Asp Leu Val Gly Arg Asn		
	1780	1785 1790
Leu Phe Ala Met Ala Val Glu Gly Val Val Phe Phe Leu Ile Thr Val		
	1795	1800 1805
Leu Ile Gln Tyr Arg Phe Phe Ile Arg Pro Arg Pro Val Lys Ala Lys		
	1810	1815 1820
Leu Pro Pro Leu Asn Asp Glu Asp Glu Asp Val Arg Arg Glu Arg Gln		
	1825	1830 1835 1840
Arg Ile Leu Asp Gly Gly Gly Gln Asn Asp Ile Leu Glu Ile Lys Glu		
	1845	1850 1855
Leu Thr Lys Ile Tyr Arg Arg Lys Arg Lys Pro Ala Val Asp Arg Ile		
	1860	1865 1870
Cys Ile Gly Ile Pro Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn		
	1875	1880 1885
Gly Ala Gly Lys Ser Thr Thr Phe Lys Met Leu Thr Gly Asp Thr Pro		
	1890	1895 1900
Val Thr Arg Gly Asp Ala Phe Leu Asn Lys Asn Ser Ile Leu Ser Asn		
	1905	1910 1915 1920
Ile His Glu Val His Gln Asn Met Gly Tyr Cys Pro Gln Phe Asp Ala		
	1925	1930 1935
Ile Thr Glu Leu Leu Thr Gly Arg Glu His Val Glu Phe Phe Ala Leu		
	1940	1945 1950
Leu Arg Gly Val Pro Glu Lys Glu Val Gly Lys Phe Gly Glu Trp Ala		
	1955	1960 1965
Ile Arg Lys Leu Gly Leu Val Lys Tyr Gly Glu Lys Tyr Ala Ser Asn		
	1970	1975 1980
Tyr Ser Gly Gly Asn Lys Arg Lys Leu Ser Thr Ala Met Ala Leu Ile		
	1985	1990 1995 2000
Gly Gly Pro Pro Val Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp		
	2005	2010 2015
Pro Lys Ala Arg Arg Phe Leu Trp Asn Cys Ala Leu Ser Ile Val Lys		
	2020	2025 2030
Glu Gly Arg Ser Val Val Leu Thr Ser His Ser Met Glu Glu Cys Glu		

2035	2040	2045
Ala Leu Cys Thr Arg Met Ala Ile Met Val Asn Gly Arg Phe Arg Cys		
2050	2055	2060
Leu Gly Ser Val Gln His Leu Lys Asn Arg Phe Gly Asp Gly Tyr Thr		
2065	2070	2075 2080
Ile Val Val Arg Ile Ala Gly Ser Asn Pro Asp Leu Lys Pro Val Gln		
2085	2090	2095
Glu Phe Phe Gly Leu Ala Phe Pro Gly Ser Val Leu Lys Glu Lys His		
2100	2105	2110
Arg Asn Met Leu Gln Tyr Gln Leu Pro Ser Ser Leu Ser Ser Leu Ala		
2115	2120	2125
Arg Ile Phe Ser Ile Leu Ser Gln Ser Lys Lys Arg Leu His Ile Glu		
2130	2135	2140
Asp Tyr Ser Val Ser Gln Thr Thr Leu Asp Gln Val Phe Val Asn Phe		
2145	2150	2155 2160
Ala Lys Asp Gln Ser Asp Asp Asp His Leu Lys Asp Leu Ser Leu His		
2165	2170	2175
Lys Asn Gln Thr Val Val Asp Val Ala Val Leu Thr Ser Phe Leu Gln		
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Asp Glu Lys Val Lys Glu Ser Tyr Val		
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<400> 10		
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Leu Arg Lys Arg Gln Lys Ile Arg Phe Val Val Glu Leu Val Trp Pro		
20	25	30
Leu Ser Leu Phe Leu Val Leu Ile Trp Leu Arg Asn Ala Asn Pro Leu		
35	40	45
Tyr Ser Gln His Glu Cys His Phe Pro Asn Lys Ala Met Pro Ser Ala		
50	55	60
Gly Leu Leu Pro Trp Leu Gln Gly Ile Phe Cys Asn Met Asn Asn Pro		
65	70	75 80
Cys Phe Gln Asn Pro Thr Pro Gly Glu Ser Pro Gly Thr Val Ser Asn		
85	90	95

Tyr Asn Asn Ser Ile Leu Ala Arg Val Tyr Arg Asp Phe Gln Glu Leu  
 100 105 110  
 Phe Met Asp Thr Pro Glu Val Gln His Leu Gly Gln Val Trp Ala Glu  
 115 120 125  
 Leu Arg Thr Leu Ser Gln Phe Met Asp Thr Leu Arg Thr His Pro Glu  
 130 135 140  
 Arg Phe Ala Gly Arg Gly Leu Gln Ile Arg Asp Ile Leu Lys Asp Glu  
 145 150 155 160  
 Glu Ala Leu Thr Leu Phe Leu Met Arg Asn Ile Gly Leu Ser Asp Ser  
 165 170 175  
 Val Ala His Leu Leu Val Asn Ser Gln Val Arg Val Glu Gln Phe Ala  
 180 185 190  
 Tyr Gly Val Pro Asp Leu Glu Leu Thr Asp Ile Ala Cys Ser Glu Ala  
 195 200 205  
 Leu Leu Gln Arg Phe Ile Ile Phe Ser Gln Arg Arg Gly Ala Gln Thr  
 210 215 220  
 Val Arg Asp Ala Leu Cys Pro Leu Ser Gln Val Thr Leu Gln Trp Ile  
 225 230 235 240  
 Glu Asp Thr Leu Tyr Ala Asp Val Asp Phe Phe Lys Leu Phe His Val  
 245 250 255  
 Leu Pro Thr Leu Leu Asp Ser Ser Ser Gln Gly Ile Asn Leu Arg Phe  
 260 265 270  
 Trp Gly Gly Ile Leu Ser Asp Leu Ser Pro Arg Met Gln Lys Phe Ile  
 275 280 285  
 His Arg Pro Ser Val Gln Asp Leu Leu Trp Val Ser Arg Pro Leu Leu  
 290 295 300  
 Gln Asn Gly Gly Pro Glu Thr Phe Thr Gln Leu Met Ser Ile Leu Ser  
 305 310 315 320  
 Asp Leu Leu Cys Gly Tyr Pro Glu Gly Gly Gly Ser Arg Val Phe Ser  
 325 330 335  
 Phe Asn Trp Tyr Glu Asp Asn Asn Tyr Lys Ala Phe Leu Gly Ile Asp  
 340 345 350  
 Ser Thr Arg Lys Asp Pro Ala Tyr Ser Tyr Asp Lys Arg Thr Thr Ser  
 355 360 365  
 Phe Cys Asn Ser Leu Ile Gln Ser Leu Glu Ser Asn Pro Leu Thr Lys  
 370 375 380  
 Ile Ala Trp Arg Ala Ala Lys Pro Leu Leu Met Gly Lys Ile Leu Phe  
 385 390 395 400

Thr	Pro	Asp	Ser	Pro	Ala	Ala	Arg	Arg	Ile	Met	Lys	Asn	Ala	Asn	Ser	405	410	415
Thr	Phe	Glu	Glu	Leu	Asp	Arg	Val	Arg	Lys	Leu	Val	Lys	Ala	Trp	Glu	420	425	430
Glu	Val	Gly	Pro	Gln	Ile	Trp	Tyr	Phe	Phe	Glu	Lys	Ser	Thr	Gln	Met	435	440	445
Thr	Val	Ile	Arg	Asp	Thr	Leu	Gln	His	Pro	Thr	Val	Lys	Asp	Phe	Ile	450	455	460
Asn	Arg	Gln	Leu	Gly	Glu	Glu	Gly	Ile	Thr	Thr	Glu	Ala	Val	Leu	Asn	465	470	475
Phe	Phe	Ser	Asn	Gly	Pro	Gln	Glu	Lys	Gln	Ala	Asp	Asp	Met	Thr	Ser	485	490	495
Phe	Asp	Trp	Arg	Asp	Ile	Phe	Asn	Ile	Thr	Asp	Arg	Phe	Leu	Arg	Leu	500	505	510
Ala	Asn	Gln	Tyr	Leu	Glu	Cys	Leu	Val	Leu	Asp	Lys	Phe	Glu	Ser	Tyr	515	520	525
Asp	Asp	Glu	Val	Gln	Leu	Thr	Gln	Arg	Ala	Leu	Ser	Leu	Leu	Glu	Glu	530	535	540
Asn	Arg	Phe	Trp	Ala	Gly	Val	Val	Phe	Pro	Gly	Met	Tyr	Pro	Trp	Ala	545	550	555
Ser	Ser	Leu	Pro	Pro	His	Val	Lys	Tyr	Lys	Ile	Arg	Met	Asp	Ile	Asp	565	570	575
Val	Val	Glu	Lys	Thr	Asn	Lys	Ile	Lys	Asp	Arg	Tyr	Trp	Asp	Ser	Gly	580	585	590
Pro	Arg	Ala	Asp	Pro	Val	Glu	Asp	Phe	Arg	Tyr	Ile	Trp	Gly	Gly	Phe	595	600	605
Ala	Tyr	Leu	Gln	Asp	Met	Val	Glu	Gln	Gly	Ile	Val	Lys	Ser	Gln	Met	610	615	620
Gln	Ala	Glu	Pro	Pro	Ile	Gly	Val	Tyr	Leu	Gln	Gln	Met	Pro	Tyr	Pro	625	630	635
Cys	Phe	Val	Asp	Asp	Ser	Phe	Met	Ile	Ile	Leu	Asn	Arg	Cys	Phe	Pro	645	650	655
Ile	Phe	Met	Val	Leu	Ala	Trp	Ile	Tyr	Ser	Val	Ser	Met	Thr	Val	Lys	660	665	670
Gly	Ile	Val	Leu	Glu	Lys	Glu	Leu	Arg	Leu	Lys	Glu	Thr	Leu	Lys	Asn	675	680	685
Gln	Gly	Val	Ser	Asn	Ala	Val	Ile	Trp	Cys	Thr	Trp	Phe	Leu	Asp	Ser	690	695	700

Phe	Ser	Ile	Met	Ala	Leu	Ser	Ile	Phe	Leu	Leu	Thr	Leu	Phe	Ile	Met	
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His	Gly	Arg	Ile	Leu	His	Tyr	Ser	Asp	Pro	Phe	Ile	Leu	Phe	Leu	Phe	
			725						730					735		
Leu	Leu	Ala	Phe	Ala	Thr	Ala	Thr	Ile	Met	Gln	Ser	Phe	Leu	Leu	Ser	
		740						745					750			
Thr	Leu	Phe	Ser	Lys	Ala	Ser	Leu	Ala	Ala	Ala	Cys	Ser	Gly	Val	Ile	
	755						760					765				
Tyr	Phe	Thr	Leu	Tyr	Leu	Pro	His	Val	Leu	Cys	Phe	Ala	Trp	Gln	Asp	
	770					775						780				
Arg	Met	Thr	Ala	Asp	Leu	Lys	Thr	Thr	Val	Ser	Leu	Leu	Ser	Ser	Val	
785					790					795					800	
Ala	Phe	Gly	Phe	Gly	Thr	Glu	Tyr	Leu	Val	Arg	Phe	Glu	Glu	Gln	Gly	
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Leu	Gly	Leu	Gln	Trp	Ser	Asn	Ile	Gly	Lys	Ser	Pro	Leu	Glu	Gly	Asp	
			820					825					830			
Glu	Phe	Ser	Phe	Leu	Leu	Ser	Met	Lys	Met	Met	Leu	Leu	Asp	Ala	Ala	
	835						840					845				
Leu	Tyr	Gly	Leu	Leu	Ala	Trp	Tyr	Leu	Asp	Gln	Val	Phe	Pro	Gly	Asp	
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Tyr	Gly	Thr	Pro	Leu	Pro	Trp	Tyr	Phe	Leu	Leu	Gln	Glu	Ser	Tyr	Trp	
865					870					875					880	
Leu	Gly	Gly	Glu	Gly	Cys	Ser	Thr	Arg	Glu	Glu	Arg	Ala	Leu	Glu	Lys	
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Thr	Glu	Pro	Leu	Thr	Glu	Glu	Met	Glu	Asp	Pro	Glu	His	Pro	Glu	Gly	
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Met	Asn	Asp	Ser	Phe	Phe	Glu	Arg	Glu	Leu	Pro	Gly	Leu	Val	Pro	Gly	
	915						920					925				
Val	Cys	Val	Lys	Asn	Leu	Val	Lys	Val	Phe	Glu	Pro	Ser	Gly	Arg	Pro	
	930					935					940					
Ala	Val	Asp	Arg	Leu	Asn	Ile	Thr	Phe	Tyr	Glu	Asn	Gln	Ile	Thr	Ala	
945					950					955					960	
Phe	Leu	Gly	His	Asn	Gly	Ala	Gly	Lys	Thr	Thr	Thr	Leu	Ser	Ile	Leu	
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Thr	Gly	Leu	Leu	Pro	Pro	Thr	Ser	Gly	Thr	Val	Leu	Ile	Gly	Gly	Lys	
		980						985					990			
Asp	Ile	Glu	Thr	Asn	Leu	Asp	Val	Val	Arg	Gln	Ser	Leu	Gly	Met	Cys	
	995					1000						1005				



Pro Gln His Asn Ile Leu Phe His His Leu Thr Val Ala Glu His Ile  
 1010 1015 1020  
 Leu Phe Tyr Ala Gln Leu Lys Gly Arg Ser Trp Glu Glu Ala Gln Leu  
 1025 1030 1035 1040  
 Glu Met Glu Ala Met Leu Glu Asp Thr Gly Leu His His Lys Arg Asn  
 1045 1050 1055  
 Glu Glu Ala Gln Asp Leu Ser Gly Gly Met Gln Arg Lys Leu Ser Val  
 1060 1065 1070  
 Ala Ile Ala Phe Val Gly Asp Ser Lys Val Val Val Leu Asp Glu Pro  
 1075 1080 1085  
 Thr Ser Gly Val Asp Pro Tyr Ser Arg Arg Ser Ile Trp Asp Leu Leu  
 1090 1095 1100  
 Leu Lys Tyr Arg Ser Gly Arg Thr Ile Ile Met Ser Thr His His Met  
 1105 1110 1115 1120  
 Asp Glu Ala Asp Leu Leu Gly Asp Arg Ile Ala Ile Ile Ser Gln Gly  
 1125 1130 1135  
 Arg Leu Tyr Cys Ser Gly Thr Pro Leu Phe Leu Lys Asn Cys Phe Gly  
 1140 1145 1150  
 Thr Gly Phe Tyr Leu Thr Leu Val Arg Lys Met Lys Asn Ile Gln Ser  
 1155 1160 1165  
 Gln Arg Gly Gly Cys Glu Gly Val Cys Ser Cys Thr Ser Lys Gly Phe  
 1170 1175 1180  
 Ser Thr Arg Cys Pro Thr Arg Val Asp Glu Ile Thr Glu Glu Gln Val  
 1185 1190 1195 1200  
 Leu Asp Gly Asp Val Gln Glu Leu Met Asp Leu Val Tyr His His Val  
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 Pro Glu Ala Lys Leu Val Glu Cys Ile Gly Gln Glu Leu Ile Phe Leu  
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 Leu Pro Asn Lys Asn Phe Lys Gln Arg Ala Tyr Ala Ser Leu Phe Arg  
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 Glu Leu Glu Glu Thr Leu Ala Asp Leu Gly Leu Ser Ser Phe Gly Ile  
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 Ser Asp Thr Pro Leu Glu Glu Ile Phe Leu Lys Val Thr Glu Asp Ala  
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 Gly Ala Gly Ser Met Phe Val Gly Gly Ala Gln Gln Lys Arg Glu Gln  
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 Ala Gly Leu Arg His Pro Cys Ser Ala Pro Thr Glu Lys Leu Arg Gln  
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Tyr Ala Gln Ala Pro His Thr Cys Ser Pro Gly Gln Val Asp Pro Pro  
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 Lys Gly Gln Pro Ser Pro Glu Pro Glu Asp Pro Gly Val Pro Phe Asn  
 1330 1335 1340  
 Thr Gly Ala Arg Leu Ile Leu Gln His Val Gln Ala Leu Leu Val Lys  
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 Arg Phe His His Thr Ile Arg Ser Arg Lys Asp Phe Val Ala Gln Ile  
 1365 1370 1375  
 Val Leu Pro Ala Thr Phe Val Phe Leu Ala Leu Met Leu Ser Ile Ile  
 1380 1385 1390  
 Val Pro Pro Phe Gly Glu Phe Pro Ala Leu Thr Leu His Pro Trp Met  
 1395 1400 1405  
 Tyr Gly His Gln Tyr Thr Phe Phe Ser Met Asp Glu Pro Asn Asn Glu  
 1410 1415 1420  
 His Leu Glu Val Leu Ala Asp Val Leu Leu Asn Arg Pro Gly Phe Gly  
 1425 1430 1435 1440  
 Asn Arg Cys Leu Lys Glu Glu Trp Leu Pro Glu Tyr Pro Cys Ile Asn  
 1445 1450 1455  
 Ala Thr Ser Trp Lys Thr Pro Ser Val Ser Pro Asn Ile Thr His Leu  
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 Phe Gln Lys Gln Lys Trp Thr Ala Ala His Pro Ser Pro Ser Cys Lys  
 1475 1480 1485  
 Cys Ser Thr Arg Glu Lys Leu Thr Met Leu Pro Glu Cys Pro Glu Gly  
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 Leu Gln Asp Leu Thr Asn Arg Asn Ile Ser Asp Tyr Leu Val Lys Thr  
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 Tyr Pro Ala Leu Ile Arg Ser Ser Leu Lys Ser Lys Phe Trp Val Asn  
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 Glu Gln Arg Tyr Gly Gly Ile Ser Ile Gly Gly Lys Leu Pro Ala Ile  
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 Pro Ile Ser Gly Glu Ala Leu Val Gly Phe Leu Ser Gly Leu Gly Gln  
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 Met Met Asn Val Ser Gly Gly Pro Val Thr Arg Glu Ala Ser Lys Glu  
 1585 1590 1595 1600  
 Met Leu Asp Phe Leu Lys His Leu Glu Thr Thr Asp Asn Ile Lys Val  
 1605 1610 1615

Trp Phe Asn Asn Lys Gly Trp His Ala Leu Val Ser Phe Leu Asn Val  
 1620 1625 1630  
 Ala His Asn Ala Ile Leu Arg Ala Ser Leu Pro Arg Asp Arg Asp Pro  
 1635 1640 1645  
 Glu Glu Tyr Gly Ile Thr Val Ile Ser Gln Pro Leu Asn Leu Thr Lys  
 1650 1655 1660  
 Glu Gln Leu Ser Asp Ile Thr Val Leu Thr Thr Ser Val Asp Ala Val  
 1665 1670 1675 1680  
 Val Ala Ile Cys Val Ile Phe Ala Met Ser Phe Val Pro Ala Ser Phe  
 1685 1690 1695  
 Val Leu Tyr Leu Ile Gln Glu Arg Val Thr Lys Ala Lys His Leu Gln  
 1700 1705 1710  
 Phe Ile Ser Gly Val Ser Pro Thr Thr Tyr Trp Leu Thr Asn Phe Leu  
 1715 1720 1725  
 Trp Asp Ile Met Asn Tyr Ala Val Ser Ala Gly Leu Val Val Gly Ile  
 1730 1735 1740  
 Phe Ile Gly Phe Gln Lys Lys Ala Tyr Thr Ser Pro Asp Asn Leu Pro  
 1745 1750 1755 1760  
 Ala Leu Val Ser Leu Leu Met Leu Tyr Gly Trp Ala Val Ile Pro Met  
 1765 1770 1775  
 Met Tyr Pro Ala Ser Phe Leu Phe Glu Val Pro Ser Thr Ala Tyr Val  
 1780 1785 1790  
 Ala Leu Ser Cys Ala Asn Leu Phe Ile Gly Ile Asn Ser Ser Ala Ile  
 1795 1800 1805  
 Thr Phe Val Leu Glu Leu Phe Glu Asn Asn Arg Thr Leu Leu Arg Phe  
 1810 1815 1820  
 Asn Ala Met Leu Arg Lys Leu Leu Ile Val Phe Pro His Phe Cys Leu  
 1825 1830 1835 1840  
 Gly Arg Gly Leu Ile Asp Leu Ala Leu Ser Gln Ala Val Thr Asp Val  
 1845 1850 1855  
 Tyr Ala Gln Phe Gly Glu Glu Tyr Ser Ala Asn Pro Phe Gln Trp Asp  
 1860 1865 1870  
 Leu Ile Gly Lys Asn Leu Val Ala Met Ala Ile Glu Gly Val Val Tyr  
 1875 1880 1885  
 Phe Leu Leu Thr Leu Leu Ile Gln His His Phe Phe Leu Thr Arg Trp  
 1890 1895 1900  
 Ile Ala Glu Pro Ala Arg Glu Pro Val Phe Asp Glu Asp Asp Asp Val  
 1905 1910 1915 1920

Ala Glu Glu Arg Gln Arg Val Met Ser Gly Gly Asn Lys Thr Asp Ile  
 1925 1930 1935  
 Leu Lys Leu Asn Glu Leu Thr Lys Val Tyr Ser Gly Ser Ser Ser Pro  
 1940 1945 1950  
 Ala Val Asp Arg Leu Cys Val Gly Val Arg Pro Gly Glu Cys Phe Gly  
 1955 1960 1965  
 Leu Leu Gly Val Asn Gly Ala Gly Lys Thr Thr Thr Phe Lys Met Leu  
 1970 1975 1980  
 Thr Gly Asp Thr Thr Val Thr Ser Gly Asp Ala Thr Val Ala Gly Lys  
 1985 1990 1995 2000  
 Ser Ile Leu Thr Ser Ile Ser Asp Val His Gln Asn Met Gly Tyr Cys  
 2005 2010 2015  
 Pro Gln Phe Asp Ala Ile Asp Asp Leu Leu Thr Gly Arg Glu His Leu  
 2020 2025 2030  
 Tyr Leu Tyr Ala Arg Leu Arg Gly Val Pro Ser Lys Glu Ile Glu Lys  
 2035 2040 2045  
 Val Ala Asn Trp Gly Ile Gln Ser Leu Gly Leu Ser Leu Tyr Ala Asp  
 2050 2055 2060  
 Arg Leu Ala Gly Thr Tyr Ser Gly Gly Asn Lys Arg Lys Leu Ser Thr  
 2065 2070 2075 2080  
 Ala Ile Ala Leu Thr Gly Cys Pro Pro Leu Leu Leu Leu Asp Glu Pro  
 2085 2090 2095  
 Thr Thr Gly Met Asp Pro Gln Ala Arg Arg Met Leu Trp Asn Thr Ile  
 2100 2105 2110  
 Val Ser Ile Ile Arg Glu Gly Arg Ala Val Val Leu Thr Ser His Ser  
 2115 2120 2125  
 Met Glu Glu Cys Glu Ala Leu Cys Thr Arg Leu Ala Ile Met Val Lys  
 2130 2135 2140  
 Gly Thr Phe Gln Cys Leu Gly Thr Ile Gln His Leu Lys Tyr Lys Phe  
 2145 2150 2155 2160  
 Gly Asp Gly Tyr Ile Val Thr Met Lys Ile Lys Ser Pro Lys Asp Asp  
 2165 2170 2175  
 Leu Leu Pro Asp Leu Asn Pro Val Glu Gln Phe Phe Gln Gly Asn Phe  
 2180 2185 2190  
 Pro Gly Ser Val Gln Arg Glu Arg His His Ser Met Leu Gln Phe Gln  
 2195 2200 2205  
 Val Pro Ser Ser Ser Leu Ala Arg Ile Phe Gln Leu Leu Ile Ser His  
 2210 2215 2220

Lys Asp Ser Leu Leu Ile Glu Glu Tyr Ser Val Thr Gln Thr Thr Leu  
2225 2230 2235 2240

Asp Gln Val Phe Val Asn Phe Ala Lys Gln Gln Thr Glu Thr Tyr Asp  
2245 2250 2255

Leu Pro Leu His Pro Arg Ala Ala Gly Ala Ser Trp Gln Ala Lys Leu  
2260 2265 2270

Glu Glu Lys Ser Gly Arg Leu Gln Thr Gln Glu Pro Leu Pro Ala Gly  
2275 2280 2285

Ser Glu Gln Leu Ala Asn Gly Ser Asn Pro Thr Ala Ala Glu Asp Lys  
2290 2295 2300

His Thr Arg Ser Pro Gln  
2305 2310

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<211> 2261

<212> PRT

<213> Homo sapiens

<400> 11

Met Ala Cys Trp Pro Gln Leu Arg Leu Leu Leu Trp Lys Asn Leu Thr  
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Phe Arg Arg Arg Gln Thr Cys Gln Leu Leu Leu Glu Val Ala Trp Pro  
20 25 30

Leu Phe Ile Phe Leu Ile Leu Ile Ser Val Arg Leu Ser Tyr Pro Pro  
35 40 45

Tyr Glu Gln His Glu Cys His Phe Pro Asn Lys Ala Met Pro Ser Ala  
50 55 60

Gly Thr Leu Pro Trp Val Gln Gly Ile Ile Cys Asn Ala Asn Asn Pro  
65 70 75 80

Cys Phe Arg Tyr Pro Thr Pro Gly Glu Ala Pro Gly Val Val Gly Asn  
85 90 95

Phe Asn Lys Ser Ile Val Ala Arg Leu Phe Ser Asp Ala Arg Arg Leu  
100 105 110

Leu Leu Tyr Ser Gln Lys Asp Thr Ser Met Lys Asp Met Arg Lys Val  
115 120 125

Leu Arg Thr Leu Gln Gln Ile Lys Lys Ser Ser Ser Asn Leu Lys Leu  
130 135 140

Gln Asp Phe Leu Val Asp Asn Glu Thr Phe Ser Gly Phe Leu Tyr His  
145 150 155 160

Asn Leu Ser Leu Pro Lys Ser Thr Val Asp Lys Met Leu Arg Ala Asp  
165 170 175

Val	Ile	Leu	His	Lys	Val	Phe	Leu	Gln	Gly	Tyr	Gln	Leu	His	Leu	Thr	180	185	190	
Ser	Leu	Cys	Asn	Gly	Ser	Lys	Ser	Glu	Glu	Met	Ile	Gln	Leu	Gly	Asp	195	200	205	
Gln	Glu	Val	Ser	Glu	Leu	Cys	Gly	Leu	Pro	Arg	Glu	Lys	Leu	Ala	Ala	210	215	220	
Ala	Glu	Arg	Val	Leu	Arg	Ser	Asn	Met	Asp	Ile	Leu	Lys	Pro	Ile	Leu	225	230	235	240
Arg	Thr	Leu	Asn	Ser	Thr	Ser	Pro	Phe	Pro	Ser	Lys	Glu	Leu	Ala	Glu	245	250	255	
Ala	Thr	Lys	Thr	Leu	Leu	His	Ser	Leu	Gly	Thr	Leu	Ala	Gln	Glu	Leu	260	265	270	
Phe	Ser	Met	Arg	Ser	Trp	Ser	Asp	Met	Arg	Gln	Glu	Val	Met	Phe	Leu	275	280	285	
Thr	Asn	Val	Asn	Ser	Ser	Ser	Ser	Ser	Thr	Gln	Ile	Tyr	Gln	Ala	Val	290	295	300	
Ser	Arg	Ile	Val	Cys	Gly	His	Pro	Glu	Gly	Gly	Gly	Leu	Lys	Ile	Lys	305	310	315	320
Ser	Leu	Asn	Trp	Tyr	Glu	Asp	Asn	Asn	Tyr	Lys	Ala	Leu	Phe	Gly	Gly	325	330	335	
Asn	Gly	Thr	Glu	Glu	Asp	Ala	Glu	Thr	Phe	Tyr	Asp	Asn	Ser	Thr	Thr	340	345	350	
Pro	Tyr	Cys	Asn	Asp	Leu	Met	Lys	Asn	Leu	Glu	Ser	Ser	Pro	Leu	Ser	355	360	365	
Arg	Ile	Ile	Trp	Lys	Ala	Leu	Lys	Pro	Leu	Leu	Val	Gly	Lys	Ile	Leu	370	375	380	
Tyr	Thr	Pro	Asp	Thr	Pro	Ala	Thr	Arg	Gln	Val	Met	Ala	Glu	Val	Asn	385	390	395	400
Lys	Thr	Phe	Gln	Glu	Leu	Ala	Val	Phe	His	Asp	Leu	Glu	Gly	Met	Trp	405	410	415	
Glu	Glu	Leu	Ser	Pro	Lys	Ile	Trp	Thr	Phe	Met	Glu	Asn	Ser	Gln	Glu	420	425	430	
Met	Asp	Leu	Val	Arg	Met	Leu	Leu	Asp	Ser	Arg	Asp	Asn	Asp	His	Phe	435	440	445	
Trp	Glu	Gln	Gln	Leu	Asp	Gly	Leu	Asp	Trp	Thr	Ala	Gln	Asp	Ile	Val	450	455	460	
Ala	Phe	Leu	Ala	Lys	His	Pro	Glu	Asp	Val	Gln	Ser	Ser	Asn	Gly	Ser	465	470	475	480

Val	Tyr	Thr	Trp	Arg	Glu	Ala	Phe	Asn	Glu	Thr	Asn	Gln	Ala	Ile	Arg	
				485					490					495		
Thr	Ile	Ser	Arg	Phe	Met	Glu	Cys	Val	Asn	Leu	Asn	Lys	Leu	Glu	Pro	
			500					505					510			
Ile	Ala	Thr	Glu	Val	Trp	Leu	Ile	Asn	Lys	Ser	Met	Glu	Leu	Leu	Asp	
		515					520					525				
Glu	Arg	Lys	Phe	Trp	Ala	Gly	Ile	Val	Phe	Thr	Gly	Ile	Thr	Pro	Gly	
	530					535					540					
Ser	Ile	Glu	Leu	Pro	His	His	Val	Lys	Tyr	Lys	Ile	Arg	Met	Asp	Ile	
545					550				555						560	
Asp	Asn	Val	Glu	Arg	Thr	Asn	Lys	Ile	Lys	Asp	Gly	Tyr	Trp	Asp	Pro	
				565					570					575		
Gly	Pro	Arg	Ala	Asp	Pro	Phe	Glu	Asp	Met	Arg	Tyr	Val	Trp	Gly	Gly	
			580					585					590			
Phe	Ala	Tyr	Leu	Gln	Asp	Val	Val	Glu	Gln	Ala	Ile	Ile	Arg	Val	Leu	
		595					600					605				
Thr	Gly	Thr	Glu	Lys	Lys	Thr	Gly	Val	Tyr	Met	Gln	Gln	Met	Pro	Tyr	
	610					615					620					
Pro	Cys	Tyr	Val	Asp	Asp	Ile	Phe	Leu	Arg	Val	Met	Ser	Arg	Ser	Met	
625					630					635					640	
Pro	Leu	Phe	Met	Thr	Leu	Ala	Trp	Ile	Tyr	Ser	Val	Ala	Val	Ile	Ile	
				645					650					655		
Lys	Gly	Ile	Val	Tyr	Glu	Lys	Glu	Ala	Arg	Leu	Lys	Glu	Thr	Met	Arg	
			660					665					670			
Ile	Met	Gly	Leu	Asp	Asn	Ser	Ile	Leu	Trp	Phe	Ser	Trp	Phe	Ile	Ser	
		675					680					685				
Ser	Leu	Ile	Pro	Leu	Leu	Val	Ser	Ala	Gly	Leu	Leu	Val	Val	Ile	Leu	
		690				695					700					
Lys	Leu	Gly	Asn	Leu	Leu	Pro	Tyr	Ser	Asp	Pro	Ser	Val	Val	Phe	Val	
705					710					715					720	
Phe	Leu	Ser	Val	Phe	Ala	Val	Val	Thr	Ile	Leu	Gln	Cys	Phe	Leu	Ile	
				725					730					735		
Ser	Thr	Leu	Phe	Ser	Arg	Ala	Asn	Leu	Ala	Ala	Ala	Cys	Gly	Gly	Ile	
			740					745					750			
Ile	Tyr	Phe	Thr	Leu	Tyr	Leu	Pro	Tyr	Val	Leu	Cys	Val	Ala	Trp	Gln	
		755					760					765				
Asp	Tyr	Val	Gly	Phe	Thr	Leu	Lys	Ile	Phe	Ala	Ser	Leu	Leu	Ser	Pro	
		770				775						780				

Val	Ala	Phe	Gly	Phe	Gly	Cys	Glu	Tyr	Phe	Ala	Leu	Phe	Glu	Glu	Gln	785	790	795	800
Gly	Ile	Gly	Val	Gln	Trp	Asp	Asn	Leu	Phe	Glu	Ser	Pro	Val	Glu	Glu	805	810	815	
Asp	Gly	Phe	Asn	Leu	Thr	Thr	Ser	Val	Ser	Met	Met	Leu	Phe	Asp	Thr	820	825	830	
Phe	Leu	Tyr	Gly	Val	Met	Thr	Trp	Tyr	Ile	Glu	Ala	Val	Phe	Pro	Gly	835	840	845	
Gln	Tyr	Gly	Ile	Pro	Arg	Pro	Trp	Tyr	Phe	Pro	Cys	Thr	Lys	Ser	Tyr	850	855	860	
Trp	Phe	Gly	Glu	Glu	Ser	Asp	Glu	Lys	Ser	His	Pro	Gly	Ser	Asn	Gln	865	870	875	880
Lys	Arg	Ile	Ser	Glu	Ile	Cys	Met	Glu	Glu	Glu	Pro	Thr	His	Leu	Lys	885	890	895	
Leu	Gly	Val	Ser	Ile	Gln	Asn	Leu	Val	Lys	Val	Tyr	Arg	Asp	Gly	Met	900	905	910	
Lys	Val	Ala	Val	Asp	Gly	Leu	Ala	Leu	Asn	Phe	Tyr	Glu	Gly	Gln	Ile	915	920	925	
Thr	Ser	Phe	Leu	Gly	His	Asn	Gly	Ala	Gly	Lys	Thr	Thr	Thr	Met	Ser	930	935	940	
Ile	Leu	Thr	Gly	Leu	Phe	Pro	Pro	Thr	Ser	Gly	Thr	Ala	Tyr	Ile	Leu	945	950	955	960
Gly	Lys	Asp	Ile	Arg	Ser	Glu	Met	Ser	Thr	Ile	Arg	Gln	Asn	Leu	Gly	965	970	975	
Val	Cys	Pro	Gln	His	Asn	Val	Leu	Phe	Asp	Met	Leu	Thr	Val	Glu	Glu	980	985	990	
His	Ile	Trp	Phe	Tyr	Ala	Arg	Leu	Lys	Gly	Leu	Ser	Glu	Lys	His	Val	995	1000	1005	
Lys	Ala	Glu	Met	Glu	Gln	Met	Ala	Leu	Asp	Val	Gly	Leu	Pro	Ser	Ser	1010	1015	1020	
Lys	Leu	Lys	Ser	Lys	Thr	Ser	Gln	Leu	Ser	Gly	Gly	Met	Gln	Arg	Lys	1025	1030	1035	1040
Leu	Ser	Val	Ala	Leu	Ala	Phe	Val	Gly	Gly	Ser	Lys	Val	Val	Ile	Leu	1045	1050	1055	
Asp	Glu	Pro	Thr	Ala	Gly	Val	Asp	Pro	Tyr	Ser	Arg	Arg	Gly	Ile	Trp	1060	1065	1070	
Glu	Leu	Leu	Leu	Lys	Tyr	Arg	Gln	Gly	Arg	Thr	Ile	Ile	Leu	Ser	Thr	1075	1080	1085	



His His Met Asp Glu Ala Asp Val Leu Gly Asp Arg Ile Ala Ile Ile  
 1090 1095 1100  
 Ser His Gly Lys Leu Cys Cys Val Gly Ser Ser Leu Phe Leu Lys Asn  
 1105 1110 1115 1120  
 Gln Leu Gly Thr Gly Tyr Tyr Leu Thr Leu Val Lys Lys Asp Val Glu  
 1125 1130 1135  
 Ser Ser Leu Ser Ser Cys Arg Asn Ser Ser Ser Thr Val Ser Tyr Leu  
 1140 1145 1150  
 Lys Lys Glu Asp Ser Val Ser Gln Ser Ser Ser Asp Ala Gly Leu Gly  
 1155 1160 1165  
 Ser Asp His Glu Ser Asp Thr Leu Thr Ile Asp Val Ser Ala Ile Ser  
 1170 1175 1180  
 Asn Leu Ile Arg Lys His Val Ser Glu Ala Arg Leu Val Glu Asp Ile  
 1185 1190 1195 1200  
 Gly His Glu Leu Thr Tyr Val Leu Pro Tyr Glu Ala Ala Lys Glu Gly  
 1205 1210 1215  
 Ala Phe Val Glu Leu Phe His Glu Ile Asp Asp Arg Leu Ser Asp Leu  
 1220 1225 1230  
 Gly Ile Ser Ser Tyr Gly Ile Ser Glu Thr Thr Leu Glu Glu Ile Phe  
 1235 1240 1245  
 Leu Lys Val Ala Glu Glu Ser Gly Val Asp Ala Glu Thr Ser Asp Gly  
 1250 1255 1260  
 Thr Leu Pro Ala Arg Arg Asn Arg Arg Ala Phe Gly Asp Lys Gln Ser  
 1265 1270 1275 1280  
 Cys Leu Arg Pro Phe Thr Glu Asp Asp Ala Ala Asp Pro Asn Asp Ser  
 1285 1290 1295  
 Asp Ile Asp Pro Glu Ser Arg Glu Thr Asp Leu Leu Ser Gly Met Asp  
 1300 1305 1310  
 Gly Lys Gly Ser Tyr Gln Val Lys Gly Trp Lys Leu Thr Gln Gln Gln  
 1315 1320 1325  
 Phe Val Ala Leu Leu Trp Lys Arg Leu Leu Ile Ala Arg Arg Ser Arg  
 1330 1335 1340  
 Lys Gly Phe Phe Ala Gln Ile Val Leu Pro Ala Val Phe Val Cys Ile  
 1345 1350 1355 1360  
 Ala Leu Val Phe Ser Leu Ile Val Pro Pro Phe Gly Lys Tyr Pro Ser  
 1365 1370 1375  
 Leu Glu Leu Gln Pro Trp Met Tyr Asn Glu Gln Tyr Thr Phe Val Ser  
 1380 1385 1390

Asn Asp Ala Pro Glu Asp Thr Gly Thr Leu Glu Leu Leu Asn Ala Leu	1395	1400	1405
Thr Lys Asp Pro Gly Phe Gly Thr Arg Cys Met Glu Gly Asn Pro Ile	1410	1415	1420
Pro Asp Thr Pro Cys Gln Ala Gly Glu Glu Glu Trp Thr Thr Ala Pro	1425	1430	1440
Val Pro Gln Thr Ile Met Asp Leu Phe Gln Asn Gly Asn Trp Thr Met	1445	1450	1455
Gln Asn Pro Ser Pro Ala Cys Gln Cys Ser Ser Asp Lys Ile Lys Lys	1460	1465	1470
Met Leu Pro Val Cys Pro Pro Gly Ala Gly Gly Leu Pro Pro Pro Gln	1475	1480	1485
Arg Lys Gln Asn Thr Ala Asp Ile Leu Gln Asp Leu Thr Gly Arg Asn	1490	1495	1500
Ile Ser Asp Tyr Leu Val Lys Thr Tyr Val Gln Ile Ile Ala Lys Ser	1505	1510	1520
Leu Lys Asn Lys Ile Trp Val Asn Glu Phe Arg Tyr Gly Gly Phe Ser	1525	1530	1535
Leu Gly Val Ser Asn Thr Gln Ala Leu Pro Pro Ser Gln Glu Val Asn	1540	1545	1550
Asp Ala Thr Lys Gln Met Lys Lys His Leu Lys Leu Ala Lys Asp Ser	1555	1560	1565
Ser Ala Asp Arg Phe Leu Asn Ser Leu Gly Arg Phe Met Thr Gly Leu	1570	1575	1580
Asp Thr Arg Asn Asn Val Lys Val Trp Phe Asn Asn Lys Gly Trp His	1585	1590	1595
Ala Ile Ser Ser Phe Leu Asn Val Ile Asn Asn Ala Ile Leu Arg Ala	1605	1610	1615
Asn Leu Gln Lys Gly Glu Asn Pro Ser His Tyr Gly Ile Thr Ala Phe	1620	1625	1630
Asn His Pro Leu Asn Leu Thr Lys Gln Gln Leu Ser Glu Val Ala Pro	1635	1640	1645
Met Thr Thr Ser Val Asp Val Leu Val Ser Ile Cys Val Ile Phe Ala	1650	1655	1660
Met Ser Phe Val Pro Ala Ser Phe Val Val Phe Leu Ile Gln Glu Arg	1665	1670	1675
Val Ser Lys Ala Lys His Leu Gln Phe Ile Ser Gly Val Lys Pro Val	1685	1690	1695

Ile Tyr Trp Leu Ser Asn Phe Val Trp Asp Met Cys Asn Tyr Val Val  
 1700 1705 1710  
 Pro Ala Thr Leu Val Ile Ile Ile Phe Ile Cys Phe Gln Gln Lys Ser  
 1715 1720 1725  
 Tyr Val Ser Ser Thr Asn Leu Pro Val Leu Ala Leu Leu Leu Leu  
 1730 1735 1740  
 Tyr Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Val Phe  
 1745 1750 1755 1760  
 Lys Ile Pro Ser Thr Ala Tyr Val Val Leu Thr Ser Val Asn Leu Phe  
 1765 1770 1775  
 Ile Gly Ile Asn Gly Ser Val Ala Thr Phe Val Leu Glu Leu Phe Thr  
 1780 1785 1790  
 Asp Asn Lys Leu Asn Asn Ile Asn Asp Ile Leu Lys Ser Val Phe Leu  
 1795 1800 1805  
 Ile Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile Asp Met Val Lys  
 1810 1815 1820  
 Asn Gln Ala Met Ala Asp Ala Leu Glu Arg Phe Gly Glu Asn Arg Phe  
 1825 1830 1835 1840  
 Val Ser Pro Leu Ser Trp Asp Leu Val Gly Arg Asn Leu Phe Ala Met  
 1845 1850 1855  
 Ala Val Glu Gly Val Val Phe Phe Leu Ile Thr Val Leu Ile Gln Tyr  
 1860 1865 1870  
 Arg Phe Phe Ile Arg Pro Arg Pro Val Asn Ala Lys Leu Ser Pro Leu  
 1875 1880 1885  
 Asn Asp Glu Asp Glu Asp Val Arg Arg Glu Arg Gln Arg Ile Leu Asp  
 1890 1895 1900  
 Gly Gly Gly Gln Asn Asp Ile Leu Glu Ile Lys Glu Leu Thr Lys Ile  
 1905 1910 1915 1920  
 Tyr Arg Arg Lys Arg Lys Pro Ala Val Asp Arg Ile Cys Val Gly Ile  
 1925 1930 1935  
 Pro Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly Lys  
 1940 1945 1950  
 Ser Ser Thr Phe Lys Met Leu Thr Gly Asp Thr Thr Val Thr Arg Gly  
 1955 1960 1965  
 Asp Ala Phe Leu Asn Arg Asn Ser Ile Leu Ser Asn Ile His Glu Val  
 1970 1975 1980  
 His Gln Asn Met Gly Tyr Cys Pro Gln Phe Asp Ala Ile Thr Glu Leu  
 1985 1990 1995 2000

Leu Thr Gly Arg Glu His Val Glu Phe Phe Ala Leu Leu Arg Gly Val  
 2005 2010 2015  
 Pro Glu Lys Glu Val Gly Lys Val Gly Glu Trp Ala Ile Arg Lys Leu  
 2020 2025 2030  
 Gly Leu Val Lys Tyr Gly Glu Lys Tyr Ala Gly Asn Tyr Ser Gly Gly  
 2035 2040 2045  
 Asn Lys Arg Lys Leu Ser Thr Ala Met Ala Leu Ile Gly Gly Pro Pro  
 2050 2055 2060  
 Val Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Lys Ala Arg  
 2065 2070 2075 2080  
 Arg Phe Leu Trp Asn Cys Ala Leu Ser Val Val Lys Glu Gly Arg Ser  
 2085 2090 2095  
 Val Val Leu Thr Ser His Ser Met Glu Glu Cys Glu Ala Leu Cys Thr  
 2100 2105 2110  
 Arg Met Ala Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser Val  
 2115 2120 2125  
 Gln His Leu Lys Asn Arg Phe Gly Asp Gly Tyr Thr Ile Val Val Arg  
 2130 2135 2140  
 Ile Ala Gly Ser Asn Pro Asp Leu Lys Pro Val Gln Asp Phe Phe Gly  
 2145 2150 2155 2160  
 Leu Ala Phe Pro Gly Ser Val Pro Lys Glu Lys His Arg Asn Met Leu  
 2165 2170 2175  
 Gln Tyr Gln Leu Pro Ser Ser Leu Ser Ser Leu Ala Arg Ile Phe Ser  
 2180 2185 2190  
 Ile Leu Ser Gln Ser Lys Lys Arg Leu His Ile Glu Asp Tyr Ser Val  
 2195 2200 2205  
 Ser Gln Thr Thr Leu Asp Gln Val Phe Val Asn Phe Ala Lys Asp Gln  
 2210 2215 2220  
 Ser Asp Asp Asp His Leu Lys Asp Leu Ser Leu His Lys Asn Gln Thr  
 2225 2230 2235 2240  
 Val Val Asp Val Ala Val Leu Thr Ser Phe Leu Gln Asp Glu Lys Val  
 2245 2250 2255  
 Lys Glu Ser Tyr Val  
 2260

<210> 12  
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 <213> Homo sapiens

<400> 12

Met Gly Phe Val Arg Gln Ile Gln Leu Leu Leu Trp Lys Asn Trp Thr  
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Leu Arg Lys Arg Gln Lys Ile Arg Phe Val Val Glu Leu Val Trp Pro  
20 25 30

Leu Ser Leu Phe Leu Val Leu Ile Trp Leu Arg Asn Ala Asn Pro Leu  
35 40 45

Tyr Ser His His Glu Cys His Phe Pro Asn Lys Ala Met Pro Ser Ala  
50 55 60

Gly Met Leu Pro Trp Leu Gln Gly Ile Phe Cys Asn Val Asn Asn Pro  
65 70 75 80

Cys Phe Gln Ser Pro Thr Pro Gly Glu Ser Pro Gly Ile Val Ser Asn  
85 90 95

Tyr Asn Asn Ser Ile Leu Ala Arg Val Tyr Arg Asp Phe Gln Glu Leu  
100 105 110

Leu Met Asn Ala Pro Glu Ser Gln His Leu Gly Arg Ile Trp Thr Glu  
115 120 125

Leu His Ile Leu Ser Gln Phe Met Asp Thr Leu Arg Thr His Pro Glu  
130 135 140

Arg Ile Ala Gly Arg Gly Ile Arg Ile Arg Asp Ile Leu Lys Asp Glu  
145 150 155 160

Glu Thr Leu Thr Leu Phe Leu Ile Lys Asn Ile Gly Leu Ser Asp Ser  
165 170 175

Val Val Tyr Leu Leu Ile Asn Ser Gln Val Arg Pro Glu Gln Phe Ala  
180 185 190

His Gly Val Pro Asp Leu Ala Leu Lys Asp Ile Ala Cys Ser Glu Ala  
195 200 205

Leu Leu Glu Arg Phe Ile Ile Phe Ser Gln Arg Arg Gly Ala Lys Thr  
210 215 220

Val Arg Tyr Ala Leu Cys Ser Leu Ser Gln Gly Thr Leu Gln Trp Ile  
225 230 235 240

Glu Asp Thr Leu Tyr Ala Asn Val Asp Phe Phe Lys Leu Phe Arg Val  
245 250 255

Leu Pro Thr Leu Leu Asp Ser Arg Ser Gln Gly Ile Asn Leu Arg Ser  
260 265 270

Trp Gly Gly Ile Leu Ser Asp Met Ser Pro Arg Ile Gln Glu Phe Ile  
275 280 285

His Arg Pro Ser Met Gln Asp Leu Leu Trp Val Thr Arg Pro Leu Met

290	295	300
Gln Asn Gly Gly Pro Glu Thr Phe Thr Lys Leu Met Gly Ile Leu Ser 305 310 315 320		
Asp Leu Leu Cys Gly Tyr Pro Glu Gly Gly Gly Ser Arg Val Leu Ser 325 330 335		
Phe Asn Trp Tyr Glu Asp Asn Asn Tyr Lys Ala Phe Leu Gly Ile Asp 340 345 350		
Ser Thr Arg Lys Asp Pro Ile Tyr Ser Tyr Asp Arg Arg Thr Thr Ser 355 360 365		
Phe Cys Asn Ala Leu Ile Gln Ser Leu Glu Ser Asn Pro Leu Thr Lys 370 375 380		
Ile Ala Trp Arg Ala Ala Lys Pro Leu Leu Met Gly Lys Ile Leu Tyr 385 390 395 400		
Thr Pro Asp Ser Pro Ala Ala Arg Arg Ile Leu Lys Asn Ala Asn Ser 405 410 415		
Thr Phe Glu Glu Leu Glu His Val Arg Lys Leu Val Lys Ala Trp Glu 420 425 430		
Glu Val Gly Pro Gln Ile Trp Tyr Phe Phe Asp Asn Ser Thr Gln Met 435 440 445		
Asn Met Ile Arg Asp Thr Leu Gly Asn Pro Thr Val Lys Asp Phe Leu 450 455 460		
Asn Arg Gln Leu Gly Glu Glu Gly Ile Thr Ala Glu Ala Ile Leu Asn 465 470 475 480		
Phe Leu Tyr Lys Gly Pro Arg Glu Ser Gln Ala Asp Asp Met Ala Asn 485 490 495		
Phe Asp Trp Arg Asp Ile Phe Asn Ile Thr Asp Arg Thr Leu Arg Leu 500 505 510		
Val Asn Gln Tyr Leu Glu Cys Leu Val Leu Asp Lys Phe Glu Ser Tyr 515 520 525		
Asn Asp Glu Thr Gln Leu Thr Gln Arg Ala Leu Ser Leu Leu Glu Glu 530 535 540		
Asn Met Phe Trp Ala Gly Val Val Phe Pro Asp Met Tyr Pro Trp Thr 545 550 555 560		
Ser Ser Leu Pro Pro His Val Lys Tyr Lys Ile Arg Met Asp Ile Asp 565 570 575		
Val Val Glu Lys Thr Asn Lys Ile Lys Asp Arg Tyr Trp Asp Ser Gly 580 585 590		
Pro Arg Ala Asp Pro Val Glu Asp Phe Arg Tyr Ile Trp Gly Gly Phe		

595					600					605					
Ala	Tyr	Leu	Gln	Asp	Met	Val	Glu	Gln	Gly	Ile	Thr	Arg	Ser	Gln	Val
610						615					620				
Gln	Ala	Glu	Ala	Pro	Val	Gly	Ile	Tyr	Leu	Gln	Gln	Met	Pro	Tyr	Pro
625						630					635				640
Cys	Phe	Val	Asp	Asp	Ser	Phe	Met	Ile	Ile	Leu	Asn	Arg	Cys	Phe	Pro
				645					650					655	
Ile	Phe	Met	Val	Leu	Ala	Trp	Ile	Tyr	Ser	Val	Ser	Met	Thr	Val	Lys
			660					665					670		
Ser	Ile	Val	Leu	Glu	Lys	Glu	Leu	Arg	Leu	Lys	Glu	Thr	Leu	Lys	Asn
		675					680					685			
Gln	Gly	Val	Ser	Asn	Ala	Val	Ile	Trp	Cys	Thr	Trp	Phe	Leu	Asp	Ser
		690					695					700			
Phe	Ser	Ile	Met	Ser	Met	Ser	Ile	Phe	Leu	Leu	Thr	Ile	Phe	Ile	Met
705						710					715				720
His	Gly	Arg	Ile	Leu	His	Tyr	Ser	Asp	Pro	Phe	Ile	Leu	Phe	Leu	Phe
				725					730					735	
Leu	Leu	Ala	Phe	Ser	Thr	Ala	Thr	Ile	Met	Leu	Cys	Phe	Leu	Leu	Ser
			740					745					750		
Thr	Phe	Phe	Ser	Lys	Ala	Ser	Leu	Ala	Ala	Ala	Cys	Ser	Gly	Val	Ile
			755				760						765		
Tyr	Phe	Thr	Leu	Tyr	Leu	Pro	His	Ile	Leu	Cys	Phe	Ala	Trp	Gln	Asp
		770				775						780			
Arg	Met	Thr	Ala	Glu	Leu	Lys	Lys	Ala	Val	Ser	Leu	Leu	Ser	Pro	Val
				785					790			795			800
Ala	Phe	Gly	Phe	Gly	Thr	Glu	Tyr	Leu	Val	Arg	Phe	Glu	Glu	Gln	Gly
				805					810					815	
Leu	Gly	Leu	Gln	Trp	Ser	Asn	Ile	Gly	Asn	Ser	Pro	Thr	Glu	Gly	Asp
			820					825					830		
Glu	Phe	Ser	Phe	Leu	Leu	Ser	Met	Gln	Met	Met	Leu	Leu	Asp	Ala	Ala
			835				840						845		
Val	Tyr	Gly	Leu	Leu	Ala	Trp	Tyr	Leu	Asp	Gln	Val	Phe	Pro	Gly	Asp
			850				855					860			
Tyr	Gly	Thr	Pro	Leu	Pro	Trp	Tyr	Phe	Leu	Leu	Gln	Glu	Ser	Tyr	Trp
				865					870			875			880
Leu	Ser	Gly	Glu	Gly	Cys	Ser	Thr	Arg	Glu	Glu	Arg	Ala	Leu	Glu	Lys
				885					890					895	
Thr	Glu	Pro	Leu	Thr	Glu	Glu	Thr	Glu	Asp	Pro	Glu	His	Pro	Glu	Gly

900					905					910						
Ile	His	Asp	Ser	Phe	Phe	Glu	Arg	Glu	His	Pro	Gly	Trp	Val	Pro	Gly	
915					920					925						
Val	Cys	Val	Lys	Asn	Leu	Val	Lys	Ile	Phe	Glu	Pro	Cys	Gly	Arg	Pro	
930					935					940						
Ala	Val	Asp	Arg	Leu	Asn	Ile	Thr	Phe	Tyr	Glu	Asn	Gln	Ile	Thr	Ala	
945					950					955					960	
Phe	Leu	Gly	His	Asn	Gly	Ala	Gly	Lys	Thr	Thr	Thr	Leu	Ser	Ile	Leu	
965					970					975						
Thr	Gly	Leu	Leu	Pro	Pro	Thr	Ser	Gly	Thr	Val	Leu	Val	Gly	Gly	Arg	
980					985					990						
Asp	Ile	Glu	Thr	Ser	Leu	Asp	Ala	Val	Arg	Gln	Ser	Leu	Gly	Met	Cys	
995					1000					1005						
Pro	Gln	His	Asn	Ile	Leu	Phe	His	His	Leu	Thr	Val	Ala	Glu	His	Met	
1010					1015					1020						
Leu	Phe	Tyr	Ala	Gln	Leu	Lys	Gly	Lys	Ser	Gln	Glu	Glu	Ala	Gln	Leu	
1025					1030					1035					1040	
Glu	Met	Glu	Ala	Met	Leu	Glu	Asp	Thr	Gly	Leu	His	His	Lys	Arg	Asn	
1045					1050					1055						
Glu	Glu	Ala	Gln	Asp	Leu	Ser	Gly	Gly	Met	Gln	Arg	Lys	Leu	Ser	Val	
1060					1065					1070						
Ala	Ile	Ala	Phe	Val	Gly	Asp	Ala	Lys	Val	Val	Ile	Leu	Asp	Glu	Pro	
1075					1080					1085						
Thr	Ser	Gly	Val	Asp	Pro	Tyr	Ser	Arg	Arg	Ser	Ile	Trp	Asp	Leu	Leu	
1090					1095					1100						
Leu	Lys	Tyr	Arg	Ser	Gly	Arg	Thr	Ile	Ile	Met	Ser	Thr	His	His	Met	
1105					1110					1115					1120	
Asp	Glu	Ala	Asp	Leu	Leu	Gly	Asp	Arg	Ile	Ala	Ile	Ile	Ala	Gln	Gly	
1125					1130					1135						
Arg	Leu	Tyr	Cys	Ser	Gly	Thr	Pro	Leu	Phe	Leu	Lys	Asn	Cys	Phe	Gly	
1140					1145					1150						
Thr	Gly	Leu	Tyr	Leu	Thr	Leu	Val	Arg	Lys	Met	Lys	Asn	Ile	Gln	Ser	
1155					1160					1165						
Gln	Arg	Lys	Gly	Ser	Glu	Gly	Thr	Cys	Ser	Cys	Ser	Ser	Lys	Gly	Phe	
1170					1175					1180						
Ser	Thr	Thr	Cys	Pro	Ala	His	Val	Asp	Asp	Leu	Thr	Pro	Glu	Gln	Val	
1185					1190					1195					1200	
Leu	Asp	Gly	Asp	Val	Asn	Glu	Leu	Met	Asp	Val	Val	Leu	His	His	Val	



1205	1210	1215
Pro Glu Ala Lys Leu Val Glu Cys Ile Gly Gln Glu Leu Ile Phe Leu 1220 1225 1230		
Leu Pro Asn Lys Asn Phe Lys His Arg Ala Tyr Ala Ser Leu Phe Arg 1235 1240 1245		
Glu Leu Glu Glu Thr Leu Ala Asp Leu Gly Leu Ser Ser Phe Gly Ile 1250 1255 1260		
Ser Asp Thr Pro Leu Glu Glu Ile Phe Leu Lys Val Thr Glu Asp Ser 1265 1270 1275 1280		
Asp Ser Gly Pro Leu Phe Ala Gly Gly Ala Gln Gln Lys Arg Glu Asn 1285 1290 1295		
Val Asn Pro Arg His Pro Cys Leu Gly Pro Arg Glu Lys Ala Gly Gln 1300 1305 1310		
Thr Pro Gln Asp Ser Asn Val Cys Ser Pro Gly Ala Pro Ala Ala His 1315 1320 1325		
Pro Glu Gly Gln Pro Pro Pro Glu Pro Glu Cys Pro Gly Pro Gln Leu 1330 1335 1340		
Asn Thr Gly Thr Gln Leu Val Leu Gln His Val Gln Ala Leu Leu Val 1345 1350 1355 1360		
Lys Arg Phe Gln His Thr Ile Arg Ser His Lys Asp Phe Leu Ala Gln 1365 1370 1375		
Ile Val Leu Pro Ala Thr Phe Val Phe Leu Ala Leu Met Leu Ser Ile 1380 1385 1390		
Val Ile Leu Pro Phe Gly Glu Tyr Pro Ala Leu Thr Leu His Pro Trp 1395 1400 1405		
Ile Tyr Gly Gln Gln Tyr Thr Phe Phe Ser Met Asp Glu Pro Gly Ser 1410 1415 1420		
Glu Gln Phe Thr Val Leu Ala Asp Val Leu Leu Asn Lys Pro Gly Phe 1425 1430 1435 1440		
Gly Asn Arg Cys Leu Lys Glu Gly Trp Leu Pro Glu Tyr Pro Cys Gly 1445 1450 1455		
Asn Ser Thr Pro Trp Lys Thr Pro Ser Val Ser Pro Asn Ile Thr Gln 1460 1465 1470		
Leu Phe Gln Lys Gln Lys Trp Thr Gln Val Asn Pro Ser Pro Ser Cys 1475 1480 1485		
Arg Cys Ser Thr Arg Glu Lys Leu Thr Met Leu Pro Glu Cys Pro Glu 1490 1495 1500		
Gly Ala Gly Gly Leu Pro Pro Pro Gln Arg Thr Gln Arg Ser Thr Glu		

1505	1510	1515	1520
Ile Leu Gln Asp Leu Thr Asp Arg Asn Ile Ser Asp Phe Leu Val Lys	1525	1530	1535
Thr Tyr Pro Ala Leu Ile Arg Ser Ser Leu Lys Ser Lys Phe Trp Val	1540	1545	1550
Asn Glu Gln Arg Tyr Gly Gly Ile Ser Ile Gly Gly Lys Leu Pro Val	1555	1560	1565
Val Pro Ile Thr Gly Glu Ala Leu Val Gly Phe Leu Ser Asp Leu Gly	1570	1575	1580
Arg Ile Met Asn Val Ser Gly Gly Pro Ile Thr Arg Glu Ala Ser Lys	1585	1590	1595
Glu Ile Pro Asp Phe Leu Lys His Leu Glu Thr Glu Asp Asn Ile Lys	1605	1610	1615
Val Trp Phe Asn Asn Lys Gly Trp His Ala Leu Val Ser Phe Leu Asn	1620	1625	1630
Val Ala His Asn Ala Ile Leu Arg Ala Ser Leu Pro Lys Asp Arg Ser	1635	1640	1645
Pro Glu Glu Tyr Gly Ile Thr Val Ile Ser Gln Pro Leu Asn Leu Thr	1650	1655	1660
Lys Glu Gln Leu Ser Glu Ile Thr Val Leu Thr Thr Ser Val Asp Ala	1665	1670	1675
Val Val Ala Ile Cys Val Ile Phe Ser Met Ser Phe Val Pro Ala Ser	1685	1690	1695
Phe Val Leu Tyr Leu Ile Gln Glu Arg Val Asn Lys Ser Lys His Leu	1700	1705	1710
Gln Phe Ile Ser Gly Val Ser Pro Thr Thr Tyr Trp Val Thr Asn Phe	1715	1720	1725
Leu Trp Asp Ile Met Asn Tyr Ser Val Ser Ala Gly Leu Val Val Gly	1730	1735	1740
Ile Phe Ile Gly Phe Gln Lys Lys Ala Tyr Thr Ser Pro Glu Asn Leu	1745	1750	1755
Pro Ala Leu Val Ala Leu Leu Leu Leu Tyr Gly Trp Ala Val Ile Pro	1765	1770	1775
Met Met Tyr Pro Ala Ser Phe Leu Phe Asp Val Pro Ser Thr Ala Tyr	1780	1785	1790
Val Ala Leu Ser Cys Ala Asn Leu Phe Ile Gly Ile Asn Ser Ser Ala	1795	1800	1805
Ile Thr Phe Ile Leu Glu Leu Phe Asp Asn Asn Arg Thr Leu Leu Arg			

1810	1815	1820
Phe Asn Ala Val Leu Arg Lys Leu Leu Ile Val Phe Pro His Phe Cys		
1825	1830	1835 1840
Leu Gly Arg Gly Leu Ile Asp Leu Ala Leu Ser Gln Ala Val Thr Asp		
	1845	1850 1855
Val Tyr Ala Arg Phe Gly Glu Glu His Ser Ala Asn Pro Phe His Trp		
	1860	1865 1870
Asp Leu Ile Gly Lys Asn Leu Phe Ala Met Val Val Glu Gly Val Val		
	1875	1880 1885
Tyr Phe Leu Leu Thr Leu Leu Val Gln Arg His Phe Phe Leu Ser Gln		
	1890	1895 1900
Trp Ile Ala Glu Pro Thr Lys Glu Pro Ile Val Asp Glu Asp Asp Asp		
	1905	1910 1915 1920
Val Ala Glu Glu Arg Gln Arg Ile Ile Thr Gly Gly Asn Lys Thr Asp		
	1925	1930 1935
Ile Leu Arg Leu His Glu Leu Thr Lys Ile Tyr Leu Gly Thr Ser Ser		
	1940	1945 1950
Pro Ala Val Asp Arg Leu Cys Val Gly Val Arg Pro Gly Glu Cys Phe		
	1955	1960 1965
Gly Leu Leu Gly Val Asn Gly Ala Gly Lys Thr Thr Thr Phe Lys Met		
	1970	1975 1980
Leu Thr Gly Asp Thr Thr Val Thr Ser Gly Asp Ala Thr Val Ala Gly		
	1985	1990 1995 2000
Lys Ser Ile Leu Thr Asn Ile Ser Glu Val His Gln Asn Met Gly Tyr		
	2005	2010 2015
Cys Pro Gln Phe Asp Ala Ile Asp Glu Leu Leu Thr Gly Arg Glu His		
	2020	2025 2030
Leu Tyr Leu Tyr Ala Arg Leu Arg Gly Val Pro Ala Glu Glu Ile Glu		
	2035	2040 2045
Lys Val Ala Asn Trp Ser Ile Lys Ser Leu Gly Leu Thr Val Tyr Ala		
	2050	2055 2060
Asp Cys Leu Ala Gly Thr Tyr Ser Gly Gly Asn Lys Arg Lys Leu Ser		
	2065	2070 2075 2080
Thr Ala Ile Ala Leu Ile Gly Cys Pro Pro Leu Val Leu Leu Asp Glu		
	2085	2090 2095
Pro Thr Thr Gly Met Asp Pro Gln Ala Arg Arg Met Leu Trp Asn Val		
	2100	2105 2110
Ile Val Ser Ile Ile Arg Glu Gly Arg Ala Val Val Leu Thr Ser His		

2115	2120	2125
Ser Met Glu Glu Cys Glu Ala Leu Cys Thr Arg Leu Ala Ile Met Val		
2130	2135	2140
Lys Gly Ala Phe Arg Cys Met Gly Thr Ile Gln His Leu Lys Ser Lys		
2145	2150	2155 2160
Phe Gly Asp Gly Tyr Ile Val Thr Met Lys Ile Lys Ser Pro Lys Asp		
2165	2170	2175
Asp Leu Leu Pro Asp Leu Asn Pro Val Glu Gln Phe Phe Gln Gly Asn		
2180	2185	2190
Phe Pro Gly Ser Val Gln Arg Glu Arg His Tyr Asn Met Leu Gln Phe		
2195	2200	2205
Gln Val Ser Ser Ser Ser Leu Ala Arg Ile Phe Gln Leu Leu Leu Ser		
2210	2215	2220
His Lys Asp Ser Leu Leu Ile Glu Glu Tyr Ser Val Thr Gln Thr Thr		
2225	2230	2235 2240
Leu Asp Gln Val Phe Val Asn Phe Ala Lys Gln Gln Thr Glu Ser His		
2245	2250	2255
Asp Leu Pro Leu His Pro Arg Ala Ala Gly Ala Ser Arg Gln Ala Gln		
2260	2265	2270

Asp

<210> 13  
 <211> 11  
 <212> PRT  
 <213> Human immunodeficiency virus type 1

<400> 13  
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 1 5 10

<210> 14  
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<220>  
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 domain deruved from HIV tat protein

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2476-84

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2521-12

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<210> 23  
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<210> 24  
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<220>  
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24